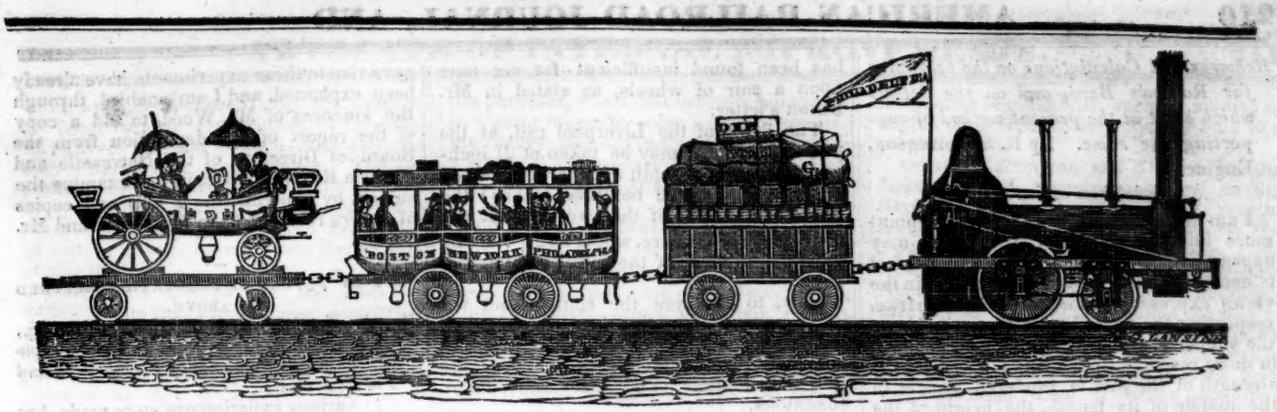

AMERICAN RAILROAD JOURNAL,
AND ADVOCATE OF INTERNAL IMPROVEMENTS.

PUBLISHED WEEKLY, AT No. 35 WALL STREET, NEW-YORK, AT THREE DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

D. K. MINOR, Editor.] SATURDAY, APRIL 11, 1835. [VOLUME IV.—No. 14.

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AMERICAN RAILROAD JOURNAL.

NEW-YORK, APRIL 11, 1835.

We continue in this number the Report of Mr. Mills upon his survey of the Rochester and Olean Canal.

We would take this opportunity to correct an error in the 12th No. In a short editorial introduction to an extract from Mr. Mills' Report, showing the comparative distance of the three great routes from this city to the Ohio River, it was said to be from Mr. Johnson's Report, whereas it should have been "from Mr. Mills' Report."

Railroad Locks.

To the Editor of the Railroad Journal:

Sir,—Locks on railroads, like most other departures from established modes, will have to contend with ridicule and opposition; and whether their merits can sustain their pretensions, experience must determine. Public safety, without regard to pecuniary considerations, demands some other than the present method of surmounting elevations, by inclined planes and stationary steam engines; and locks are now proposed for public consideration, as a substitute. The immense capital already contemplated to be invested in railroads, (42 being completed, and 146 projected,) the spirit of emulation that exists in several States, to surpass each other in that mode of intercourse, and the general predilection prevailing throughout the Union in their favor, gives any probable improvement in the safety, economy, and convenience of their construction, claims worthy of attention. The numerous inventions that are daily urged on the public, of no practical utility, and the pertinacity with which men adhere to preconceived opinions, render it difficult, without great exertion, to bring into general and immediate use designs highly important to community.

Improvements, however, are so rapid, and the country has derived such acquisitions of general prosperity and convenience, from steam navigation, railroads, and canals, that locks, so internally connected with a favorite subject of public interest, may find less difficulty of access to public patronage and confidence, than usually attends new designs. In presenting the subject to the public, the relative claims of railroad locks, and inclined planes and stationary steam engines, to the important considerations of safety, economy, and expedience, will be submitted, though the latter of the two modes being the only one in use, will not require other than general remarks. It is justly observed by Mr. Smith, editor of Wood's Treatise on Railroads, that inclined planes and stationary steam power "are an opprobrium to the present advanced state of civil engineering;" and they certainly betray a greater want of invention than displays itself in any other case, where the necessity of improvement is so evident.

That method of surmounting altitudes, since its adoption, has been a subject of complaint in England, and the fatal disasters they have occasioned strongly pressed for their discontinuance. In the United States, their destructive effects are not as generally known, or yet as severely felt; but the frequent accidents attending their operations on the Alleghany Mountains, and other places, have produced sentiments of disapprobation, that are gaining ground in the public mind. The only recommendation that inclined planes have to sanction their continuance is speed; and that, in the opinions of reflecting men, will not compensate for the least of the three objections to that mode of ascending. The views of the editor above alluded to are pertinent, and express the sentiments of those acquainted with the danger, expense, and inconvenience of that mode of ascending; he observes, "hence, any available plan, which will enable locomotive engines to ascend, with their full compliment of wagons, without the intervention of stationary engines, and their appendages, will be a most valuable addition to the utility of railways, and unless the weight to be overcome be greater, compared with the length of the whole line, the delay resulting from a diminution of speed will be a trivial inconvenience, when the advantages of dispensing with an expensive stationary power are estimated." It is not probable that locks, such as are contemplated by Mr. Taylor, the inventor, occurred to Mr. Smith; as they embrace all the requisites he requires for an elevating power, with the additional and most important one of perfect safety. W. G.

Undulating Railways.

Washington, D. C., March 30, 1835.

To the Editor of the Railroad Journal:

Dear Sir—Messrs. Badnall & Stephenson, in their views respecting Undulating Railroads, are both right and both wrong. Mr. Badnall's experiments prove, that in locating Railroads in this country, where they must necessarily be undulating, an effect of power may be had not differing materially from the effect had upon level railroads; and it becomes the duty of engineers, to whom this subject more particularly belongs, to give *particular* attention to it.—Mr. Stephenson's views are correct in favor of level railroads; but it is out of the question to have them level for any considerable length in this country, or any other. We must then consider the results of Mr. Bagnall's experiments as highly useful and important, inasmuch as they demonstrate that the useful effect upon a railroad over an undulating country may be nearly, if not quite equal, to the effect if the road were level. I belong to the craft whose duty it is to make these subjects their study, and if you do not greet me too roughly, may remind you occasionally of.

Most respectfully, your

FRIEND.

We shall be pleased to receive further communications from a "Friend."

Remarks and Calculations on the best form for Railway Bars, and on the defects which exist in the present method of supporting the same. By R. STEPHENSON, Engineer.

(Concluded from our last number.)

I am afraid this digression from the point more immediately under discussion, may appear irrelevant, but it is one which I feel is necessary, fully and clearly to explain the views expressed in the foregoing remarks, respecting the flexibility of the rails above the supports, which I hold to be beneficial in more respects than one; for, whilst the strength of the rail is rendered greater in the middle of its length, the height of the chair, and the level of the rail, is reduced, which contributes to the steadiness of the construction.

Having learned that the elliptical rail on the Liverpool Railway had frequently broken, I wrote to Mr. John Dixon on the subject. The following is an extract from his letter:

"Our old rails, I am convinced, are too weak; not for the waggons, but for engines that bear six tons on one pair of wheels; and the weakest part is evidently the end next a joint, for although as deep at that point as at the places where the other chairs are fixed, it has not the support from the *next rail*, as if it were welded there, or were one continuous bar, especially when the joint chair gets loose on the block, key loose, and the block, or sleeper, itself settles. If fact, they generally bend, or break, within *six or eight inches of the end of the rail.* I believe the best rail for economising iron would be to make all the rail undulating as usual, but the two extremes parallel, the parallel part to be as deep as the belly of the undulations; but probably this could not easily be made, and would be then only a substitute for a little more iron."

This intelligence induced me to ascertain, by calculation, the weakest point in the Liverpool rail, and compare it with Mr. Dixon's statement. If the calculation accorded with the practice, it is clearly easy to provide against a similar imperfection.

In the accompanying drawing,* figs. 1 and 2 are sections of the old Liverpool rail, weighing 35 lbs. per yard; figs. 3 and 4 are similar views of a proposed elliptical rail, to weigh 50 lbs. per yard. The relative strength of these two rails, at eight inches from the end, is as 6 to 15.3, or rather more than 1 : 2½.

Such an increase of strength beyond those employed on the Liverpool and Manchester Railways, which were used for temporary purposes, and thereby injured, during the execution of the work, would appear to be ample.

If we apply the formula which has already been given for the strength of the rails, to the Liverpool elliptical rail, we shall find that it indicates the weakest point at about nine inches from the end, being, in fact, at that point of the curve where it deviates most from the true ellipse, which would have been equally strong throughout.

Now, the depth of the elliptical rail, at nine inches from the end, is exactly the depth due to a parallel rail of the same weight per yard. We have, therefore, data to calculate what would have been the strength of the parallel rail in the middle of its length, compared with the strength of the elliptical rail at that point, which has been found insufficient for six tons upon a pair of wheels, as stated in Mr. Dixon's letter.

The depth of the Liverpool rail, at the point of fracture may be taken at 2⅞ inches: whereas the depth of a parallel rail of equal weight would be three inches; the relative strengths of the two rails, at the usual place of fracture, would be $\overline{2\frac{7}{8}}|^2$, $\overline{3}|^2$, or as $8\frac{1}{4} : 9$, in favor of the parallel rail at this point.

Now, to continue the comparison, we must suppose the same load which broke the elliptical rail at seven inches from the end, transferred to the middle of the parallel rail, and calculate its adequacy under these conditions.

Since we find the elliptical rail break at seven or eight inches from the end, where the depth is 2⅞ inches, we are perhaps near the truth in taking three inches as the proper depth, being the depth of the parallel rail which we have] just shown has the advantage over the other in the rate of $8\frac{1}{4} : 9$.

We know also that the strain produced by the same weight, placed in different parts of a beam, is as the rectangle of the segments into which the beam is divided; the comparative strains, therefore, produced by a given weight, seven inches and eighteen inches from the end, will be as $7 + 29 : 18^2$, or as 5 : 8, very nearly.

Taking, therefore, the strength of the parallel rail as correct, at seven inches from the end, it must be too weak in the middle, in the proportion of 8 to 5; and we may, consequently, from these premises, draw the following conclusions, viz.: Had the Liverpool Railway been laid with parallel rails, 35 lbs. per yard, the breakage would have been increased in the ratio of nearly 5 : 8, and the place of fracture would have been midway between the bearings, instead of seven or eight inches from the end. If we take the weakest part of the elliptical rail, as calculation gives it, viz.: nine, instead of seven inches, then the proportional breakage would have been as 6 : 8.

I am fully aware that some risk is incurred in thus endeavoring to represent numerically a comparison which is perhaps not susceptible of rigid calculation; but I am anxious that the truth on this much disputed point should be elicited, and in this attempt to establish a comparison upon grounds partly experimental and partly theoretical, it is believed a numerical statement will tend to define that which I am not aware has hitherto been more than mere matter of opinion, and thus bring the subject more within the grasp of legitimate argument.

In concluding these remarks, I beg leave to state that, if I have in any part of them betrayed a bias in favor of the elliptical rail, without a sufficiently powerful reason, I shall have pleasure in hearing it pointed out, with a view to correction. I have endeavored sincerely to give the subject that impartial consideration which its importance demanded, and I need scarcely add that it has given me some satisfaction to find that the experimental and theoretical results coincide sufficiently. This satisfaction is enhanced, when I find that the conclusion in favor of the elliptical rail is consistent with the opinion and experience of Mr. John Dixon, of the Liverpool and Manchester Railway—of Mr. Thomas Storey, the engineer on the Stockton and Darlington Railway—and of Mr. Nicholas Wood, one of the Directors of the Newcastle and Carlisle Railway, to whom I am indebted for the table of experiments embodied in these remarks. The circumstances which gave rise to these experiments have already been explained, and I am enabled, through the kindness of Mr. Wood, to add a copy of the report of the deputation from the Board of Directors of the Newcastle and Carlisle Railway, appointed to examine the subject by experiment. I also add copies of letters received from Mr. Wood and Mr. Storey.

* The drawing here referred to did not accompany the manuscript from Mr. Stephenson.

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COPY OF REPORT OF DEPUTATION ALLUDED TO ABOVE.

Result of trials made at Walker Foundry, October 10th, and 31st, 1832, to show the comparative merits of Fish-bellied and Parallel Rails.

"Various experiments were made, but those which appear to the committee to have more immediate reference to the views of the directors, are the following.

"Three trials were made of fish-bellied rails, of 50 lbs. per yard; three trials of parallel rails of the same weight; and two trials of fish-bellied rails, weighing 40 lbs. per yard.

"The weights laid on in these trials reached different amounts, but 90 cwt. is taken in the following for each trial, which the committee conceive to be a load sufficient to meet any practical object. The weight of the steelyard was 6 cwt., and 14 cwt. was added each time; the measure of deflexion was taken in parts, 1088 of which go to an inch.

"The first six loads (90 cwt.) on the three trials of 50 lbs. fish-bellied rails, measured 164½ parts of deflevion, which give an average of 9.14 parts as the mean advantage on each 14 cwt. loading.

"The first six loads (90 cwt.) on the three trials of 50 lbs. parallel rails, measured 230 parts of deflexion, or an average of 12.77 parts mean advance for each 14 cwt. loading.

"The first six loads (90 cwt.) on the two trials of 40 lbs. fish-bellied rails, measured 185 parts of deflexion, averaged 15.41 parts mean increase of each 14 cwt. loading.

"Rejecting fractional figures, the committee consider these results to show, under the circumstances stated, that a fish-bellied rail of 45 lbs. per yard is equal to a parallel rail of 50 lbs. per yard, because, as just expressed, nine parts represent the 50 lbs. fish-bellied rails, twelve parts the 50 lbs. parallel, and fifteen parts the 40 lbs. fish-bellied, bringing the parallel, as nearly as need be, midway between 50 lbs. and 40 lbs. fish-bellied rails."

(Signed,) B. THOMPSON,
N. WOOD,
R. W. BRANDLING,
W. LOSH,
JAS. THOMPSON,
FRAS. GILES,
W. WOODS.

—

COPY OF A LETTER FROM MR. WOOD.

Killingworth, 24th May, 1834,

My dear Sir: As the information you required was the result of private experiments, I did not like to give it until I had the sanction of the directors, which I now have. The experiments were occasioned by a difference of opinion whether parallel or fish-bellied rails were best, and, to bring the question before the directors in the most decisive manner, experiments were ordered to be made upon both rails—Mr. B. Thompson furnishing the section of parallel, and the fish-bellied being furnished by myself. Enclosed are the sections, by which you will see that the wearing surface, or top, of the rail, and the base, were precisely the same; the extreme depth of the parallel

being 4 in., fish-bellied 5 in.; the base of the latter being a semi-ellipse, 3½ in. deep, 1½ in. from the end of each three feet, the curved knob being three inches. The experiments were conducted with the greatest care, and the deflexion measured in 1088th parts of an inch. The weights were added 14 cwt. at a time, upon 6 cwt., the weight of the steelyard.

Taking the first 96 cwt. laid upon the middle of the rail, the rail being supported at each end, the deflexion was $\frac{55}{1088}$ parts of an inch, fish-bellied; $\frac{77}{1088}$ parts of an inch, parallel, of 50 lbs. per yard each; and $\frac{98}{1088}$ parts of an inch 40 lbs. fish-bellied; although the conclusion come to by the directors was, that the parallel 50 lbs. was equal to the mean between the 50 and 40 lbs. fish-bellied, viz.: $\frac{55 + 98}{2} = 76\frac{1}{2}$; the comparative stiffness of 50 lbs. parallel and fish-bellied rails, was as 55 : 77.

As, however, the directors took every thing into consideration, the form of the two rails, the fact that the saving of material in fish-bellied being only in the keel of the rail, the conclusion that a 45 lbs. fish-bellied is equal to a 50 lbs. parallel, is, I believe, a just estimate of their comparative merits. We have found the circular knob an excellent form for securing a good material of iron, as it is difficult to form with the common iron. Any other information on the subject I shall be happy to give you. I am, my dear Sir, yours very truly,

(Signed,) NICH. WOOD.

To ROBERT STEPHENSON, Esq.

—

EXTRACT FROM MR. STOREY'S LETTER.

St. Helen's, Auckland, May 31, 1834.

Dear Sir: In reference to the subject of the form of rail best suited to railways. On the Stockton and Darlington Railway, you know we have only the fish-bellied kind, which form I have invariably supported, as the strongest, and best suited for railways, with the least weight of material in them, and liable to be the least affected by lateral blows, on account of the point of support being nearest the centre line of the mass of iron forming the rail.

One point is settled with me — that the better the qualtity of iron, the less it is suited for railway bars.

I have used rails made from Scrap No. 2 Mine Iron, with a Swede bar on the top; Cable Iron, manufactured into rails; No. 2 Mine Iron, do.; with none of which I am yet satisfied.

I have lately ordered 250 tons of rails (to replace our light ones) for the Stockton and Darlington Railway Company, to be manufactured in a different way; which, if I succeed in getting of the fish-bellied shape perfect, I am of opinion will be found to answer the purpose.

If I do not succeed in that shape (without faults and cracks on the under side) it is my intention to resort to the parallel rail, as of that shape there can be no doubt of its answering.

The process I have described is, that good strong mine iron is to be used, that has passed through the refinery and puddling furnaces, and reduced, under the forge hammer, from seven to five inches square, before rolling into rails. The price is only a shade higher than if manufactured from No. 2 mine iron *bars*, and 10*s.* per ton more than the parallel bar of the same qualtity and manufacture.

You will find that very heavy malleable iron rails are subject to rapid decomposition on the surface, until they attain the strength that passing weights will give motion to the particles, when that decomposition will, in a great measure, cease; thereby proving my theory, that beyond a certain weight is a wasteful and useless expenditure. Dear Sir, yours always, truly,

(Signed,) THOMAS STORY.

To ROBERT STEPHENSON, Esq.

—

On the above report to the Directors of the Newcastle and Carlisle Railway, I have little to remark, except to explain the apparent discrepancy which would seem to exist, on comparing the results taken as the basis of the report, with those described by the table furnished to me by Mr. N. Wood. In the report, other trials were alluded to, with which the results are blended, so that the average is below those stated in the table. The other experiments were, I believe, varied by allowing the rails to be placed loosely on the supports, when the superiority of the elliptical rail, as regards stiffness, was not so decided. The table is founded on experiments, where the rail was firmly keyed into the chairs, and was, therefore, more nearly in the condition of a railway in perfect order. This, I apprehend, will account for the relative stiffness of the two rails being stated as 55 : 77, whereas calculation gives it 55 : 85, and, by the table, where the rail was firmly keyed to the supports, it is 55 : 91.

It is also necessary to explain that the elliptical rail was made with a circular projection, which fitted into a corresponding recess in the bottom of the chair, according to Mr. W. Losh's patent. This would render the keying more efficient, and add a little to the rigidity of the elliptical rail.

This may probably account for the stiffness by experiment sometimes exceeding that represented by calculation, which ought not to be the case where the form of the beam is reduced in depth towards the end. The comparative stiffness, however, taken from the average of the experiments, as stated in Mr. Wood's letter, viz. as 55 : 77, does not differ so much from 55 : 85, as to shake our confidence in the theoretical view affording means for a tolerably near approximation.

The relative ultimate strengths are not mentioned in the report, but from the table they may be found to be as 12 : 15, and calculation gives 12 : 16, which is again sufficiently near to show that the principles adopted in the calculations are correct.

In Mr. Storey's letter, he mentions, in a particular manner, the difficulties he has had with respect to the qualtity of the iron employed in making rails; and though he expresses it as his opinion, that "the better the quality of the iron, the less it is suitable for railway purposes," I am persuaded he intends this to be taken with great limitation, as it is evident he would not mean to convey the converse, viz.: that the *worse* the quality of the iron, the *better* it is suited for railway purposes.

Mr. Storey is not alone in the opinion that the railway iron should not be of the best quality; it is urged by many that iron of the best quality is liable to laminate more rapidly than iron of a poorer description. I cannot say that my experience has led me to this conclusion; yet there may be consistency in rejecting the use of the finest cable iron, as not forming a rail proportionally stronger with the increased expense. I think it not improbable that much of the evil complained of on the Darlington Railway, from the lamination and splitting of the rails, may be owing, in some degree, to the circumstances of the carriages being without springs, and some of the very heavy locomotive engines with springs applied in such a manner, that they operate only to a partial extent.

On the Warrington and Newton, on the Leicester and Swannington, and on the Stanhope and Tyne, Railways, I recommended the rails to be made from *best No. 2 bar iron, entirely free from cinder.* The rails, when manufactured, are, therefore, No. 3 mine iron. This mode of manufacture would give rails of similar quality to those weighing 28 lbs. per yard, laid down on the Stockton and Darlington Railway in 1825, which, I was surprised to learn from the chairman, were in better condition now, after several years' wear, than some rails of 40 lbs. per yard, recently laid down.

[Journal of Franklin Institute.]

Report of Frederick C. Mills, Engineer, to the Honorable the Canal Commissioners of the State of New-York.

(Continued from number 12.)

In selecting a line having in it this amount of lockage, particular regard was had to the facilities offered for the equal and proper distribution of the locks.

Several routes were suggested, two of which were minutely surveyed; one through the deep cut at Col. Williams', down the Cashaquo valley, via Nunda, to the Dansville line near Mount Morris; the other following the same route for 1½ mile over an undulating surface, (with some extra cutting through points of ridges,) which continues of like character for about 4 miles, then passes on to a smooth faced country of clay soil on a rocky base, gently declining towards the river, over which the line was continued down the hill at Mount Morris to the junction with the aforesaid Dansville route, and is 14⅛ miles in length. Several examinations were made down the hill, which resulted in favor of the easterly line, a profile of which, together with one of the line down the ravine behind General Mill's house, will be found in the atlas, folio No. 17½.

In descending this hill, there is a fall of 469 feet in the distance of 3¾ miles.

In locating the locks on this canal, I have endeavored in all cases to obtain a "pound reach" between them of sufficient length to fill a lock with water without depressing the level from which it is drawn more than six inches.* To keep within the rule, and overcome so large an amount of lockage as will be concentrated in the above distance by single locks, would be exceedingly difficult, and although combined locks are considered objectionable, not only on account of the waste of water, but also from the loss of time occasioned when two boats arrive passing in opposite directions, the one arriving last being unavoidably detained until the first has passed all the locks forming the combination; yet in locations of rapid descent, and where the supply of water is abundant, it is deemed advantageous to construct combinations, inasmuch as there would be an important saving both in the expense of building the locks and in the diminution of the quantity of excavation and embankment necessary in forming the requisite "pound reach" for single locks; and there would also be a reduction in the number of lock-houses and tenders. I have therefore in the rapid descent to Mount Morris, located 11 combinations of 3 locks each, 6 combinations of 2 locks each, and 2 single locks. They are all 10 feet lift except the 2 single locks, one of which is 8

* This requires that the distance between the locks should be as many chains as the lock below into which the water is drawn has lift in feet.

and the other 11 feet lift, equal in all to 469 feet.

The proper length of level is obtained throughout the line except in five cases, which occur at the above point. These vary from 11.10 to 13.35 chains in length; the required surface may however be added by widening the levels, for which liberal provision is made in the estimate.

There is one other combination. It is formed of 3 locks of 10 feet lift each, and occurs about 7½ miles above Portageville, in the descent of Round Flat, (so named from its peculiar shape.) For length of levels, lift of locks, total distance of each from Olean, and the names of proprietors through whose land the canal passes, see statement L.

This distance of 17½ miles is subdivided into 17 sections, on which are located 56 locks, (45 are combined,) 7 culverts, 12 waste-weirs, 24 road and 24 farm bridges. Estimated cost of construction $536,767 14.

The Nunda valley route presents greater facilities for the distribution of locks, and as will be seen by reference to the profiles, (folio 26–27,) allows a distance of 14 miles to attain the elevation effected on the other line in 3¾ miles; but the extra distance, several expensive ravines, and the deep cut (45 feet) through Nunda hill at Williams', render this route the most expensive.

It is 15¼ miles long, and will cost $559,733.73; $202,391.45 more than the river line.

Several intelligent gentlemen were of opinion that a more favorable route might be found down Dish Mill creek to its confluence with the Genesee, and thence under the perpendicular river bank, partly in the bed of the stream, to Mount Morris dam. On passing over the ground, however, it was evident that the necessary protection required where the canal must be exposed to the river, would swell the cost far above that of either of the other routes, and as there would be no improvement in the location of the locks, the survey was abandoned.

MOUNT MORRIS TO ROCHESTER.

In making a cursory examination of this valley, the facilities for the construction of a canal appeared so nearly equal on each side of the river, that it was judged expedient to survey and locate two lines.

The estimates for both have been carefully made out, and the cost is herewith presented.

This portion of the Genesee valley has some peculiar features, which may be worthy of remark. The flats, which exceed in fertility and beauty any to be met with in this State, lie upon a bed of quicksand about 20 feet below the surface, and are generally from one to two miles wide, descending towards Rochester with great uniformity, at the rate of two feet to the mile. Through these flats the Genesee river takes a circuitous course, frequently mingling its waters with the quicksands below, and occasionally cutting the base of the hills which skirt the valley on either side.

West Side.

The route upon the west side of the river crosses the Genesee near Mount Morris dam by an aqueduct of 234 feet in length. Immediately below the mill-dam the rock disappears, and is not again seen until we arrive at the rapids near Rochester.

An aqueduct constructed at the point proposed must rest upon gravel, and probably quicksand, in which case piles will be necessary for the security of the foundation. Thence over the Moscow flats to Tracy's store-house, 4⅓ miles, the line is very nearly straight, with the requisite cuttings, and of easy excavation.

Here the river washes the base of the hill; but by some extra cutting the canal may pass without requiring protection from the river.

From this point to Rochester the location is, with a few exceptions, on the flats near the upland slopes, and sufficiently elevated to be out of danger from the floods.

The base of the hill is washed by the river at 6 points, together measuring 1 1/11 miles, 40 chnins of which will require extra protection, which is provided for in the estimates.

Slide banks occur at two points; near Gardner's store-house 9 chains, and below Fowlerville bridge 36 chains, = 45 chains.

To guard against these slides will be difficult and expensive; though for the most part they may be secured by driving piles. Another mode (by which the principal slides would be avoided,) is to cut down the hill and pass into a ravine, as seen on sec. 81 of folio 21 in atlas. This will increase the expense, but add to the security of the work.

Dumplin hill is a high sandy point coming out of the river's bank near Tone's tavern, 7½ miles from Rochester. The first or river line encounters this hill. On further examination, however, a very favorable pass was discovered to the west of the ridge, through which the line may run, and avoid the river without increasing the distance.

On this side we pass Beard's, White, Dugan's, Allen's, Big and Little Black creeks. Allen's creek sends forth 3,386.40 cubic feet of water per minute, and is the only stream on which we can depend for a feeder. It may be received into the canal at Scottsville with facility, and is 12¼ miles from Rochester.

Connected with the Mount Morris dam is a canal about 3 miles long, running to the village and thence across the flats to the Canascraga, a little to the right of the Geneseo road. This work was constructed by John R. Murray, of New-York, for hydraulic purposes; upon it are erected 1 saw-mill, 1 hemp factory, and a flour-mill with 4 run of stones.

The line from Olean and the Dansville side-cut come together at the foot of the hill under the village, and intersect the Morris canal at the flour-mill about 1 mile from the dam. In the event of continuing the route to Rochester on either side of the river, it may be necessary to make use of a portion of the mill canal for the purposes of a feeder, or as part of a main trunk; and in that case public security would demand that the State should assume the control of the water.

The dam appears to be well built; it is founded on rock, and by some additional protection at the ends, and enlargement of the embankment along the canal, and a new guard lock and pier at the pond, it may be used to advantage for the feeder, or as part of the main canal, in case it should be deemed advisable to cross the river in the pond, which, however, (unless there be peculiar circumstances connected with it calculated to recommend the plan,) should always be avoided. The rise here from extreme low to high water mark, is 6¼ feet; and the pond is favorably situated for this mode of crossing.

A company have made arrangements for constructing a bridge over the Genesee river at a convenient point, for the connection of a towing path; and that you may be able to form a just comparison of the merits of the two lines, I have made an estimate of both, and I find the cost of this to be $8,588.03 less than the other.

EAST SIDE GENESEE.

The route upon this side of the river crosses the Canascraga near Colonel Fitzhugh's, and by some extra cutting to avoid the river and a few deep ravines which occur, passes on to the end of section 78, three miles below Geneseo, principally over grounds gently sloping towards the river, and in a very direct and favorable line. Here high lands intervene, and force us off to the left, over broken grounds, in a circuitous direction round by the river's bank, encountering the steep side hills above Fowlerville bridge, and requiring protection from the stream.

After passing the bridge we leave the river's bank and run on to Avon Springs, with a more favorable line, avoiding several serious slides by keeping up the level over the high grounds.

Gentlemen residing on the line were of opinion that a much shorter and cheaper route might be obtained, by running across the ridge past Hogmier's, on the uplands to Black creek, avoiding all the slides on the river above Fowlerville bridge. A survey was made, but finding the cutting would be 65 feet in the summit, the project was abandoned.

From Avon Springs to Rochester the location is less upon the upland slope, and with the exception of two points near Markham's, two below Scottsville road in Rush, one in Henrietta, and that near the feeder dam at Rochester, a not unfavorable line is obtained upon and near the river flats.

After passing the Canascraga, the canal crosses Fall brook, Jacocks' run, Black creek, Conesus outlet, Honeyoye, Massauga and Red creeks, all inconsiderable streams, except the Conesus and Honeyoye. These are the outlets of Conesus, Hemlock, Scaneitice, and Honeyoye lakes, and together send forward in the driest season 3,311·65 cubic feet of water in a minute.

These streams may be received into the canal as feeders, and their capacity may be very much increased by damming the lakes, and reserving the surplus waters for the dry season.

This plan to some extent, and for a limited period, was adopted some years since, with the view of supplying a portion of the Erie canal with water.

Ninety chains of slide banks occur on this line. They are very similar in character to those on the west side of the river, and require the like protection.

The Genesee river runs along the foot of the hill at fifteen places, together measuring 3 miles, 1¼ miles of which require docking to protect the canal.

Dams and short feeders necessary to receive the Conesus and Honeyoye into the canal, are provided for in the estimate.

The descent to the Erie canal is 72 feet, having 9 lift locks, 3 aqueducts, 21 culverts, 7 waste-weirs, and 14 road, and 59 farm bridges.

The distance from Mount Morris to Rochester, on the east side of the river, is 38 1/10 miles, and the canal is estimated to cost $406,607.67.

The west side is 87 1/10 miles long, having the same descent, with 9 locks, 3 aqueducts, 26 culverts, 11 waste-weirs, 28 road,

and 36 farm bridges: estimated cost, $305,087.85.

DANSVILLE SIDE CUT.

The Canascraga valley, in which this canal is located, has all the characteristics of that of the Genesee below Mount Morris, and may be considered a continuation of it. The flats average about one and a half miles in width, and extend to the village of Dansville, 45 miles from Rochester, by the road, and $52\frac{35}{100}$ miles, by the contemplated canal.

Opposite this place, and above McWhorter's mill, is the confluence of Great and Little Mill creeks with the Canascraga. I gauged these streams in October last, during a severe drought. Great Mill creek then furnished 887 cubic feet, and the Canascraga, below its junction with the above streams, 2,458 cubic feet, in a minute. They have a rapid descent to this point, affording valuable water privileges. In the vicinity of the village are four establishments for the manufacture of paper, each having a double engine; also 4 or 5 grist mills, 1 clover mill, 1 blast furnace, 2 trip hammers, and several tanneries.

The paper mills employ 84 persons, manufacturing about 80,000 dollars worth of paper annually. The clover mill has prepared for market 1,500 bushels of clover seed in one season.

South of the village the land abounds with pine timber, of a quality not inferior to any in this section of the country, and within the circle of a few miles there are 55 saw-mills, making large quantities of lumber, the principal part of which would be conveyed to market by this canal. The soil in the vicinity of the village is alluvial flats and superior bottom lands. The principal part of the valley, as well as the uplands, is fine quality wheat land. Sparta, (in which the village is located,) is the largest town in the county. In 1830 the population was 3,777: it is now estimated to contain 4,500.

In terminating at the village, the supply of water for $2\frac{1}{2}$ miles of the canal, in which are 11 locks, must necessarily be drawn wholly from Mill creek at Dr. Falkner's dam, which will divert the water from his paper factory, diminish the supply at McWhorter's grist-mill, and at the mills belonging to John Wood & Co.

The line crosses the Canascraga by an aqueduct near the dam and head-race conducting the water to Wood's mills, and thence on to Mount Morris, upon the west side of the creek, over grounds unusually favorable for the construction of a canal. John Wood & Co. have in operation one carding and fulling mill, one saw-mill and a grist-mill, with 2 run of stones, designed for 4. Suitable stone for the mechanical work is found near these mills, and in the vicinity of Dansville.

The total descent from the village is 126 feet, and the distance from the head of the feeder at Faulkner's dam to Mount Morris, $15\frac{1}{2}$ miles. It is divided into 15 sections, in which are 15 locks, 1 aqueduct, 7 culverts, 4 waste-weirs, 8 road and 23 farm bridges, making a total cost of $156,604.25.

In the above estimate, I have provided for a dam and feeder immediately below Wood's mills.

By adopting this plan, we shall be able to take the requisite quantity of water to supply the loss occasioned by filteration and evaporation of $12\frac{1}{2}$ miles of the canal below all the mills of much value on the stream, which will materially reduce the damages that would otherwise be sustained.

I have also made an estimate for a termination at McWhorter's mill, about one mile from the village of Dansville. This will reduce the whole distance 1 mile; the lockage 46 feet, and diminish the expense $30,079.73.

In computing these estimates, frequent reference was had to the copious field-notes and observations made on the ground, and while on the one hand I have been careful not to swell the amount to an extravagant degree, so on the other hand, I have endeavored to make it amply sufficient for the construction of the work in a permanent manner.

I will add also, that the line has been carefully located, and to show the character of the excavation, shafts were frequently sunk, and particularly at points where there were any indications of a change.

The soil generally, is easy to excavate, and I think better calculated for the retention of water than any other hundred miles of canal I have ever examined.

With few exceptions, the embankments may be rendered sufficiently impervious to water by a careful assortment of the materials, keeping the firmer and more tenacious in the front of the work: yet the scarcity of water on the summit, and the unavoidable expense of procuring the requisite supply, have induced me to make provisions for guarding against waste by leakage, in all cases where the soil exhibited indications of a porous character. Liberal allowance has accordingly been made in the estimates for lining, as will be seen by the annexed reports, containing a detailed description of the character and amount of the different kinds of work.

The estimates for excavation and embankments are made upon the plan of allowing the banks a slope of two feet horizontal base, to one foot vertical on the inside of the canal, and one and a half feet horizontal to one foot vertical on the outside; the towing-path bank to be 12 and the berm bank 8 feet wide on top, and 7 feet high; the canal to be 26 feet wide on bottom, and 42 feet at the surface, with four feet depth of water. The side-cut to Dansville, the Ischua creek, and the Genesee river feeders at Ketchum's and at Mt. Morris, and also Allen's creek feeder at Scottsville, have the same dimensions as the main canal, being designed for the purposes of navigation. All the other channels intended for supplying the canal with water, to be 16 feet wide, with banks of the same form and size as the canal, except the width on top, which is 7 feet.

In many cases, it has been necessary to make provisions in the estimates, (as may be seen by reference thereto,) for protecting the banks of the canal from the encroachment of the streams. Wherever stone could be procured with facility, and the foundation was such as would ensure the permanency of the work, the estimates have been made with the view of erecting permanent stone walls on the exterior of the banks. With a single exception, this is the case at all the points exposed to the abrasion of the streams from Olean to Mount Morris, embracing two-thirds of the whole distance requiring protection.

On the Genesee river, below Mount Morris, docking has been estimated for, in place of stone wall, on account of the scarcity of stone, and the general prevalence of quicksands in the bed of the river. The first cost would be less than that of a stone wall, but it is believed the latter would be the cheaper in the end, inasmuch as the interest on the difference in the expense will not pay for the repairs of the former.

On canals located in valleys of much depth below the summit of the surrounding uplands, and at the foot of steep side hills, the embankments and other works are often in jeopardy, and frequently sustain great injury from the sudden swelling of the streams in the time of freshest. The Rochester and Olean canal is not greatly exposed to these torrents; yet a portion of this route is so situated, and to avoid these difficulties, (so far as practicable,) I have availed myself of every opportunity presented by the locality, for passing the flood waters under the canal by culverts and aqueducts.

Waste-weirs have also been estimated fully adequate to draw off the surplus accumulation of water in the canal.

The plans adopted for the mechanical work on the canal are generally of the same character as those on the Chenango canal.

The variation which occurs in the estimates of the several structures is partly owing to the difference in the cost of procuring the materials and partly to the quantity used.

The culverts are to be made of stone masonry laid in hydraulic cement, as are the aqueducts, except those where the streams are too near the bottom of the canal to allow space for turning the requisite arches. In such cases, wooden trunks are substituted on stone abutments and piers.

The abutments for bridges are of stone masonry, laid in quicklime mortar, at 50 feet apart, upon which a strong truss bridge is laid.

The bridges for roads much travelled are 22 feet wide. Other road and farm bridges 12 feet wide.

The plan for waste-weirs generally has stone abutments to sustain the earth, with a timber gate-way, and where the ground is favorably situated, it is designed to add long wates, by a depression in the top of the bank paved with stone.

I have made estimates, in detail, for two plans of locks, with chambers 90 feet long and 15 feet wide: one for a composite lock of wood and stone, like those now being built on the Chenango canal—and the other, for a lock of stone masonry, wholly laid in hydraulic cement. The quoin and coping to be cut stone; all the other masonry to be substantial and smoothly hammered work.

The composite lock from head to 8 feet below upper gates to be of stone masonry laid in cement—the remainder, a dry wall with a wooden chamber made within, bolted to and supported by the masonry. The plans for the foundation and gates are the same in both locks.

For a detailed estimate of the

	locks,	see statements A and B
"	culverts,	" C
"	wood trunk aqueducts,	" D
"	stone aqueducts,	" C
"	bridges,	" F
"	waste-weirs,	" G

Drawings of each plan of locks and of the aqueducts, bridges, culverts, &c., will be found at folios 32, 33, 34 and 35 of the Atlas.

There is a difference in the expense of the same kind of structure, occasioned by the location and by the greater facility of obtaining materials in some cases than in others. The statements here referred to, however, are calculated from medium cases, and are designed to show the average cost.

(To be continued.)

[From the Journal of the Franklin Institute.]

American Patents issued in August, 1834.

(Continued from our last number.)

36. For an improvement in instruments for Cutting and Crumbling the Stone in the Bladder; James Lee Hannah, M. D., city of New-York, August 19. These instruments for cutting and for crushing the stone, are, when closed, in the form of a sound or catheter, but considerably curved at the end which is to enter the bladder. According to the drawing, the shaft is straight, but the end is bent round so as to form a quarter of a circle of about three fourths of an inch radius. This quadrant constitutes the jaws by which the cutting and crushing are to be effected; these jaws work on a pin near the extreme end, and when closed form a round smooth body, having no projection to obstruct it in its entrance; its opening commences at the point where the curve terminates and joins the straight shaft. This straight shaft consists exteriorly of a thin silver tube, and through this tube passes a steel spring like a watch spring, which, when pushed in, allows the jaws to open, the spring being attached to the jointed piece. The cutting instrument has edges like shears, the crusher opens like forceps, and has teeth to hold and crush the particles of stone which have been divided by the cutter.

37. For a Machine for Grinding Grain; Joseph Grant, Providence, county of Providence, Rhode Island, August 19. This is to be a cast iron mill, consisting of three cylinders and a concave, all of which are to be so fluted as to form teeth not more than a quarter of an inch wide, and an eighth of an inch deep. Two of the cylinders, with a hopper above them, are to be placed horizontally and parallel to each other. The lower cylinder has a concave under it, which is adjustable by means of a screw. The cylinders are all to move with different velocities, the last with the greatest speed.

38. For a Threshing Machine; Chas. Wilson, city of New-York, August 19. This machine is to have a frame made entirely of cast iron, and the concave is to be formed entirely of triangular cast iron bars, about five eighths of an inch thick, and an inch apart, allowing space for the grain to fall through between der is also to be of cast iron, consisting them. The whole surface of the cylinof bands or hoops, four or five inches wide, and a quarter of an inch thick, with projecting pieces for beaters cast on them. These bands are to be driven on to a wooden cylinder.

39. For an improvement in the Percussion Cannon Lock; Enoch Hidden, city of New-York, August 20.

40. For a Filtering Machine; Isaac Wiseman, city of New-York, an alien, who has resided two years in the United States, August 20. The principal difference between this and the filtering vessels ordinarily employed, consists, first in there being a separate vessel to receive the water which has been filtered, and which vessel can, therefore, be removed for the purpose of clearing it of the sediment which always finds its way into such reservoirs; and, secondly, in interposing between the layers of broken quartz, sand, charcoal, &c., perforated plates of earthen ware, metal, or other substances, which will prevent their mixing with each other from agitation in removal from place to place. Such perforated plates are not new.

41. For a Revolving Turning Steel; Benjamin E. Hoyt, Ipswich, Essex county, Massachusetts, August 20. This steel is for turning the edges of curriers', or other knives, by passing a roller instead of a burnisher over them.

42. For an improvement in the manufacture of Percussion Powder; Samuel Guthrie, Sacket's Harbor, Jefferson county, New-York, August 21.

43. For a machine for Separating Gold from the Soil; John Dobson, Burke county, North Carolina, August 21. This machine has an inclined rocker, similar to that used in many others, and various appendages which have no claim to novelty. After describing these, the patentee says: "although I have been particular in describing the construction of the above machine, yet I rest my claim only on those principles of the bucket or receiver, by which a peculiar rolling motion is given to the mercury, most applicable to the collection of the gold; which principles and advantages it may be necessary to mention as understood by me. In the first place, a larger quantity of mercury can be used than by the present mode, without danger of loss, and extending from side to side of the bucket, presenting a rolling edge to the approach of the gold, of sixteen inches in length.

44. For a Clover and Herdgrass Hulling Machine; Reuben Ranger, Wilton, Kennebeck county, Maine, August 21. The hulling is to be effected by rubbing the seeds between perforated plates of sheet iron, one portion of which is a conical body, and is made to revolve upon a shaft placed horizontally; this is surrounded by a concave similar in form, and surmounted by a hopper. The rubbed seeds pass out through an opening in one end of the machine, at the lower edge of the base of the cone.

45. For an improvement in Finishing Leghorn, Straw, Grass, and Palm Leaf Hats and Bonnets; Joseph Snyder, city of Philadelphia, August 22. The hats and bonnets are to be varnished with any of the known suitable varnishes, adapted to the color of the article.

"The object intended to be attained by the foregoing improvement is to preserve hats and bonnets from moisture, that they may retain their proper shape."

46. For an improvement in the Spinning of Rope and other Yarn; Sidney D. Whitlock, Brooklyn, Kings county, New-York, August 22. It is observed in the petition, that this patent is claimed for a "new application of the machine for which letters patent of the United States were granted to a certain Robert Graves of Boston, on the first day of April, 1819."

In the specification it is stated, that the original machine is modified by the use of a double railway for the machine, or machines, to run upon; using at each end of the double track, a detached section of the track, made to revolve like the turnabouts upon railroads, so as to accommodate the equalizing machine. "Each track is furnished with an endless band and rope, operating as described in the specification of the said Graves' machine herein referred to, alternately on the equalizing machines as they change tracks."

47. For an improvement in Shearing Machines for Shearing Woollen Cloth; Reuben Daniels, Woodstock, Windham county, Vermont. First patented May 13th, 1834. Patent surrendered and reissued on an amended specification, August 22.

48. For improvements in the Power Printing Press; Otis Tufts, Boston, Massachusetts, August 22. We are informed in this specification, that "the principal difference between this power press and others now in use consists in supplying it with paper to be printed from one side of the frame, by using two friskets, one of which is under the operation of an impression from the platten, while the sheet of paper last printed is being removed from the second frisket, and another sheet is applied. As soon as the frisket first mentioned has received an imprint from the types, it is withdrawn by the operation of the machinery from between the platten and form, and the second frisket caused to pass in between the platten and frame, there to be acted on in its turn. So in succession each passes out from between the platten and frame with its printed sheet, while the other, with the sheet to be printed, is made to pass in between the platten and frame."

49. For a Double Cylinder Truck, for Raising Stone, Timber, &c.; Simon Frieze, Waterloo, Anne Arundel county, Maryland, August 23.

This truck is to run up an inclined plane or railway formed of parallel timbers, rising at any angle not exceeding thirty degrees. Instead of four wheels, there are to be two rollers turning on gudgeons, one at each end of the truck. An offset is to be turned down at each end of the rollers, to form a shoulder, or flanch, to keep them in their places on the ways. The part turned down is to be champhered, to cause the truck to keep the track the more readily. At the upper end of the inclined plane there is to be a block with a rope passing over its sheave, one end of which rope is attached to the truck, and the other drawn by horses or other animals, to raise the load.

50. For a Machine for Hulling Clover and other small Seeds; Merit Baily, Attleborough, Bucks county, Pennsylvania, August 23.

51. For a Horse Power; Joseph B. Streeter, Middlesex, Yates county, New-York, August 26.

52. For Jointing and Manufacturing Staves for Barrels, &c.; Cyrus M'Gre-

gor, Newport, Sullivan county, New-Hampshire, August 26.

53. For an improvement in the surgical instrument called a Scarificator; Geo. Tiemann, city of New-York, August 26. The improvement in the construction of the scarificator, which forms the subject of this patent, appears to us to deserve the appellation, as we think that, both in construction and in operation, it will be found superior to those made either in the English or the German manner. The patentee, after describing the usual mode of forming this instrument, informs us, that the principal improvements made by him are the use of pointed lancets, instead of those with rounded ends; a contrivance for using them with more exactness, and so as to cause less pain, and produce a more profuse bleeding than heretofore, whilst the mechanism is more compact, and more easily kept clean, and in order, than in the old instrument.

The lancets, instead of standing in rows upon an axis, or shaft, are all fixed upon a flat plate, which fits into a box, similar to those now in use, but smaller. For the purpose of moving the plates containing the lancets, an axis and jointed levers are placed under it, which are operated upon by suitable springs, and other appendages, that are fully described, and perfectly represented in the drawing. There is no distinct claim made, but the difference between this and other instruments for the same purpose is clearly designated, so as to leave no doubt whatever respecting the points upon which the dependence for originality is placed.

54. For Stoves for Burning Coal; Abial Smith, North Providence, Providence county, Rhode Island, August 27.

55. For a Threshing Machine; John Matthias, Manchester, Baltimore county, Maryland, August 27.

56. For a Bedstead for the Sick; Wm. Woolley, city of New-York, August 30. [For a description, with drawings, see p. 74, vol. iv., of Mechanics' Magazine.]

The following remarks of Mr. Green apply with equal force to many other branches of mechanics in this country. We certainly have the talents and the enterprize, and only want patronage from those who now go abroad for their articles.

[From the American Journal of Science and Arts.]

On the construction of the Barometer, and other Philosophical Instruments, in this country. By James Green, Philosophical Instrument Maker in Baltimore.

To Professor Silliman:

Dear Sir,—Early after the publication of No. 1, Vol. XXVII., of your very valuable Journal, my attention was directed to an article on the construction of the Barometer; and, although interested in all improvements of the means of making philosophical observations, I felt particularly so in the present instance, from having received an order on account of the public service to construct a Barometer that would furnish accurate indications of atmospheric pressure, on any plan which my experience in this branch of manufacture might approve.

In perusing the article, I was particularly attracted by the coincidence which existed in the construction of some parts of Mr. Durant's instrument, and a modification of Gay Lussac's Barometer by M. Bunten, a favorable report of which was read before the French Institute, by Messrs. Savart and Arago, and which subsequently received a favorable notice from Baron Humboldt, who, after having used the instrument during a travel through Germany of several months, testified to its efficiency in preventing the admission of air into the mercurial column. The *Globe Portable Barometer* of Mr. Durant seems to present all the advantages derivable from that arrangement, with some additional securities. However, I must freely confess that the gratification which a Philosophical Instrument Maker might be presumed to derive from such a circumstance, was in some measure diminished by discovering the writer to be under the impression that there existed an indifference to all efforts at the perfection of so important an instrument as the Barometer, on the part of the manufacturer, who, I hope, may be often found both "willing and able" to resort to all the precautionary means necessary to insure as perfect an instrument as practicable, when such an instrument is wanted. In so far as the accuracy of the instrument may depend upon the boiling of the mercury in his tube, it is a very common thing with him to take the "patient care" required in this operation. Indeed, it has been my uniform practice to observe this precaution in all instances where such accuracy was desirable, and also to use mercury that had been redistilled.

I have been induced to state these facts, because, from the tone of the article alluded to, an individual who might desire a perfect instrument would be brought naturally to the inference, that in as much as good Barometers are constantly being made somewhere, if he cannot obtain one here, he can do so abroad.

I do not suppose, however, that either yourself or the writer would wish to increase the already unfavorable prepossession which to some extent exists, to the prejudice of the instrument makers of this country. They labor, it is true, under disadvantages in the manufacture of some parts of a philosophical apparatus, which are not experienced elsewhere. But the Barometer does not belong to this class. In its construction nothing is wanting but a proper knowledge of the principles it involves, and that facility of manipulation which experience usually yields.

On visiting London and Paris in the years 1830 and '31, for the purpose of availing myself of the great advantages which those cities afford for improvement in mechanical skill, as well as the collation of philosophical facts, and while there, being engaged in some experimental observations on the construction of the Pyrometer, I had frequent intercourse with one of the most deservedly distinguished instrument makers of the former city, who I found entertained a more favorable opinion of the extent of the demand for good instruments in the United States than my experience authorized; that opinion doubtless arises from the frequent orders he received to furnish such for this country. It may be proper to remark, that many of these were of a character that could have been readily furnished here, had there existed that confidence which many of our own workmen are entitled to receive.

Conceding, however, the imperfections of the ordinarily manufactured Barometer, I cannot join with the writer in attributing to this circumstance mainly the existing neglect of so useful an instrument, when used as a weather glass; but would rather refer it to the *lengthened* series of observations it is necessary to make in every particular place, before such satisfactory general rules can be deduced as will enable us to infer from specific movements in the barometric column definite changes of weather, few persons being found willing to make periodically precise observations.

In conclusion, I may be allowed to remark, that in view of the advancement of meteorological science, the want of uniformity both in the principle and construction of the various instruments used throughout this extensive country, in order to furnish correct meteorological tables, is certainly to be regretted, and any plan that could be suggested, which might obviate this difficulty, by establishing such uniformity, would doubtless materially enhance the value of these records in promoting the advancement of Natural Science.

Baltimore, Oct. 10th, 1834.

Effects of Lime on Fish. — As a barge laden with lime was proceeding up the Ouse, from Lewes, from some cause or other, it sunk near Barcombe. The effect on the fish in the river was instantly manifested. Hundreds rose to the surface, and a great number were taken by hand. Pike were seen darting about in great agony; and most of the finny tribe within a mile of the spot where the accident occurred were rendered blind, from the burning nature of the lime. It is calculated that some thousands of fish perished. — [Scientific Tracts.]

An Aid to Learning.—In the royal printing office of Paris, there are types of *fifty-six oriental alphabets*, comprehending all the known characters of the languages of Asia, ancient as well as modern; and sixteen alphabets of those of European nations, who do not employ the Roman letters. There are forty-six fonts of various forms and sizes. All the presses in the establishment are able to throw off 278,000 sheets a day, equal to 9,266 volumes 8vo, of 30 sheets each. The number of printers engaged in the office is three hundred and fifty.—[Ib.]

Transportation on Railroads.—We earnestly invite the attention of the public to the fact stated in the following extract from a Philadelphia paper:

"On Wednesday, last week, a train of 38 cars laden almost exclusively with dry goods, for the far West, left this city, on the Columbia Railroad. We learn from the Collector, that the goods carried by this train, weighed 114,884 lbs. (nearly 58 tons.) After the 6th of April, there will be 9 locomotive engines, running between this city and Columbia, daily."

On this road there are not only two inclined planes, but also grades of ascent constantly passed with locomotive engines, at a rate of acclivity equal to 45 feet in the mile. And yet emissaries who have been sent from Albany to our city, to dissuade our capitalists from subscribing to the stock of the New York and Erie Rail Road, venture to assert, that a railroad exceeding in acclivity twenty feet to the mile, cannot be advantageously used for the transportation of merchandise.

Of the 483 miles of the Erie Railroad, upwards of 416 miles have grades of ascent less than 40 feet to the mile, 54 miles are on a dead level, and 160 miles are at rates less than 10 feet to the mile. Can the intelligent citizens of this metropolis, in the face of these and other important facts, be induced to listen to the assertions of men who have neither the patriotism to aid the work, by loaning the credit of the State upon undoubted security; nor the liberality to leave the company to make it at their own risk?

For our part we believe that the company's subscription books will soon put at rest all doubts upon this subject. ☞

Great Improvement on Railways.—The Baltimore Gazette says: "We noticed in December last the successful attempt to pass a Locomotive steam engine, by its own power, with a moderate load attached to it, over the inclined planes at Parr's Ridge, on the Baltimore and Ohio Railroad; one of which has an acclivity of about two hundred and sixty feet in a mile. Since that time, the successful running of the Locomotive Engine, during a season well adapted to furnish full opportunity to test all kinds of difficulties, that might be caused by the weather—has resulted in the satisfactory and entire conviction, that *Locomotive steam Engines can be constructed, on the plan adopted and now pursued, at the Manufactory of Machinery of the Baltimore and Ohio Railroad Company in this city, each of which engines, with the use of anthracite coal as fuel, will be capable of transporting, with certainty and safety, one hundred passengers with the requisite cars to contain them, up an inclined plane ascending one hundred feet in the mile, at the rate of ten miles an hour.* This triumphant and highly important result furnishes additional evidence, in this age of wonderful discoveries, of what may be accomplished by the use of steam power—the extent of which it is almost impossible even to imagine—as every month, every week, brings to view, and into practical use, some new benefit conferred on man by the aid of this powerful agent.

The obvious benefits, and they may truly be said to be immense in their extent—which will be derived from the result thus ascertained, are great reduction in the expense of graduating the road beds on most routes for railways, which in countries even moderately undulating, will probably be at least fifty per cent—and great increase of practicable routes for the location of railways capable of being used beneficially without the aid of stationary power. It is now believed to be not merely probable, but in fact beyond a reasonable doubt, that a route will be found on examination, for the continuation of the Baltimore and Ohio Railroad to the Ohio river, free from all inclined planes that may not be passed over without the aid of stationary power. It is also not less confidently believed, that passengers can be conveyed the whole distance in each direction in twenty-four hours."

The application of steam power, to Railroads is still in its infancy. M.

To the Editor of the New York American:

I find, Sir, in the *Buffalo Whig* of the 1st of April, the following notice of the defeat of the bill to aid in the construction of the New York and Erie Railroad:

The application to our Legislature for a loan to assist in constructing the chartered Railroad through the Southern tier of counties from the Hudson to Lake Erie, was rejected in the Assembly, on the 20th ult., by a vote of 61 to 45.

This result, we see by the New York American, is taken very much to heart, by those who had looked for a different result. We could wish, ourselves, the bill had taken a different course. The project of this road was claimed as one, the carrying out of which would be of the highest importance to the city of New York. It might have been well then—inasmuch as the Common Council of New York had seen fit to take some action upon the subject,—to have passed the bill, so amended as to authorize the Corporation of New York to raise, by loan, on the faith of the city, the two millions required, and loan it to the company.

But the truth is the plan is of no value in itself—the road not worth the making. Benjamin Wright's Report of the survey of that Road is conclusive on this point. This it is which has killed all the confidence that ever was in the scheme. We deny not to the many valuable men in New York engaged in this undertaking, good sense and sound discretion in those matters which pertain to their pursuits, there; but this does not fit them for every thing. They talk of using that Road, if constructed, in winter! Was it because an Omnibus can travers Wall street all the year? They should know, and should reflect that the winter snows fall deep, in the mountains along that route; and that the Rail, if laid, where it winds round the sharp acclivities of these mountains, "upon curves of no more than five hundred feet radius," would often lie burried beneath shapeless drifts, while at others the ice would form far above the surface. Then the route, too, is *longer* from New York to Dunkirk than by way of Albany and Buffalo, to say nothing of the ups and downs of one hundred feet to the mile! No, no; the scheme of a Rail-road, by that route, is a visionary one; useless to New York, if made,—useless to the country through which it would pass—useless to the west. Mr. Wright has put the seal of condemnation upon the thing so that nothing seems likely to remove it; and gentlemen should look at the subject as if it were a question of science, controlable, of course, by the known laws of traction and gravity, and subject to the known action of the elements. Viewed in this light it shows itself not dependent upon the votes of a Legislative body; it is condemned by physical laws, which legislative enactments cannot remove. A Rail-road from Albany to Buffalo could be used more months in the year, and, with the Hudson would convey property quicker to New York, than the proposed road, if made.

If gentlemen in New York, or elsewhere, will look calmly at this question, and compare it with mathematical demonstration, instead of flying out into "hot and furious condemnation" of us, for these remarks, they will arrive at the same conclusions to which our inquiries have brought us, in the matter.

Even if it were true, which is not admitted, that the road could not be used in winter, its opponents will hardly pretend that it will be obstructed by *snow* and *ice* until *June*—or even until May—or indeed, until the 1st of April—and perhaps they will admit that it would be obstructed only for a *few weeks*, or just long enough to say that there is not a *continued* intercourse.

The following reference to the subject, from the Pittsburg Gazette, shows conclusively the importance of the work to this city, and to the Southern counties. What is most surprising to me is, that all works which do not pass through *Albany*, *Syracuse* and *Buffalo*, are impracticable—"of no value in themselves,"—and "not worth making."

Olean and Buffalo.—Having had some curiosity to know at what time navigation of the Alleghany river from Olean to Pittsburgh usually commences in the spring, we yesterday called on Mr. Joseph Welsh, who keeps the tavern at which many persons from that country stop, to get information on that point. In reply to our question, he furnished us the following statement, taken from his books. The first arrival from Olean was, in 1831, on the 30th of March.

1832, " 15th "
1833, " 31st "
1834, " 20th "

We believe that the harbor at Buffalo is not usually open before about the first of May, or certainly not earlier than the 24th of April. So that New York would have an outlet to the Ohio, by the way of Olean, at least one month earlier than by Buffalo. In that time a steamboat could run from Olean to St. Louis, discharge and receive cargo there, and return to Olean.

The dates above mentioned are the times when rafts arrived at Pittsburgh from Olean, so that they must have left the latter place five or six days earlier. This statement of facts exhibits the importance of the Rochester and Olean Canal, and the Erie Rail Road in a strong light.—[Pittsburgh Gazette.]

Since writing the above paragaph, we noticed that the Legislature of New York have rejected the bill in relation to the New York and Erie Railroad.

The neglect to make this road will deprive the city of New York of some of the advantages which it might enjoy by the navigation of the Alleghany from Olean.

The New York Canal, not usually being open before the 15th of April, that is, about three weeks later than the average time of the opening of the Allegheny river from Olean. The Railroad, being available earlier, would be adopted to deliver merchandize at Olean, until the Canal would be opened.

If "*Benjamin Wright's* report is conclusive on this point, "that it is not worth making and of no value in itself" it is *also* conclusive on *another* point—as the Editor of the Whig will learn, viz., that the road, when made, will operate as a machine by which business men may clear the ice in Buffalo harbor—although it may be somewhat difficult for them to clear the harbor *of* ice—before the first of May. M.

The correspondent of the Philadelphia Enquirer writes that the bill reported from a select committee, by Mr. Heston, entitled "an act to improve the State by Railroads and Canals," passed the House of Representatives, by a vote of 47 to 45.

Chesapeake and Ohio Canal.—We learn from the Williamsport Banner of Saturday, that the water was let into the Canal below that place on the 1st inst., and it was expected that in a very few days the Canal would be navigable the whole distance from Dam No. 5, above Williamsport, to Washington City, (about 110 miles.)—The Banner says: the basen, at the foot of Potomac street, has been, for upwards of a week past, crowded with boats, arks, &c. laden with coal and flour, and that the busy, bustling appearance which the arrival of the boats has given to that part of the town, in the vicinity of the Canal, is truly gratifying, and brings to mind the wharves of a commercial city. No breach had occurred in the Canal, either above or below that town, since the admission of the water.

That part of the work spoken of above is new, and the water has now been let into it for the first time. It is highly creditable to the excellence of its construction that it has stood the test of the first admission of the water, although it is hardly to be expected that it can stand the 'searching operation' so far as to remain altogether free from leaks before the work becomes thoroughly settled by use.—[Nat. Intel.]

The first arrival at Cleveland.—The Cleveland (O.) Herald of the 21st ult. says,—"The schr. John Q. Adams arrived at this port from Sandusky last evening. She reports that the navigation between the two places was unobstructed. The Atlantic which, she spoke on her passage down, is hourly expected. The John Q. Adams is the first vessel which has arrived this season."

Lake Ontario.—The navigation of this lake may be said to have commenced for the season. A schr. arrived at Oswego, from Toronto, on the 31st ult. Both harbors are free from ice, as are also Port Dalhousie, at the mouth of the Welland canal, and the canal itself as far as St. Catharine's. The Oswego Palladium of the 1st inst. says that several schrs. were ready for sea, and would sail on that day; and that that port has never exhibited so great a promise of business so early in the season.—[Argus.]

The first engine has been placed on the London and Greenwich Railway, preparatory to the Easter fair; about 30 dollars per day has been received for penny passengers alone by the *foot-path* to Greenwich.

A novel machine was a few days ago exhibited in the Kennington and Clapham roads. It consisted of a sort of carriage-wheel which carries a *Railroad* for itself, upon which the carriage travels with great facility and quickness.—It was composed of a jointed square instead of a circle, and has four rollers, not touching the road, and four feet which alternately come to the ground, producing a kind of walking and escaping obstacles. We understand it is the invention of Lewis Gomperiz, Esq. Should these machines be adopted, probably common Railroads may be partially or wholly dispensed with.

[From the New-England Farmer.]

COLD WEATHER.

[Continued from page 192.]

I have said that the air being heavier and more dense in valleys is capable of containing more cold and frost. And I frankly confess I am somewhat a heretic with respect to the theory that cold or frost is a mere negative of heat. From a long course of observation on the effects of frost on the various phenomena connected with it, I have been led to the opinion that frost is something positive, something material, capable of attracting and being attracted. And I think the various phenomena of frost are more easily and satisfactorily explained by this hypothesis than on the other.

I know that air, being a conductor of heat, will sometimes when rapidly applied to a substance conduct off the heat, so as to produce frost. But this does not prove that frost is not material. It only proves that when the heat, the antagonist principle of frost, is drawing off, frost as a substance makes its appearance.

In the spring and fall, when we are afraid, from the coldness of the day, that there will be frost, if a brisk breeze springs up towards night or in the evening, our fears cease, and no frost ensues.

Every person, who makes much observation respecting the effects of frost, knows that in the fall, when cold weather commences, that in a field of potatoes, a slight breeze of air will protect the hills a little elevated above the others, while those hills not more than three feet from them, and depressed six inches below them, so that they cannot feel the influence of the breeze, are much injured — the higher hills breaking the force of the breeze upon the lower.

Every person in Vermont knows that the frost falls later in the spring, and earlier in the fall, in the valleys than on the hills, unless there be a fog in the valleys to prevent it. And there is almost always less motion in the air in the valleys than on the high lands. Why in these cases should not the brisk air on the hills conduct off the heat so as to prevent frost, while it lights on the lower ground, when there is scarce any motion in the air.

I will mention one more fact in connexion with this subject. Some years since I saw in the paper that a person hung a pail of water on a favorite fruit tree, while in blossom, to protect it from frost. At the time, I supposed that if it could have any effect it must be by creating a miniature fog.

Now for the fact — a few years since I was deliberating where I should place some early potatoes for seed, so as to keep them from frost, and from being mixed with other potatoes. I was advised to put them into a cellar, where there was a water cistern; this was the coldest cellar under my house. But I adopted the advice, and have pursued the practice ever since. On the 4th of January the water froze over in the cistern, and within two days the ice was from one to two inches thick. I then thought of my potatoes, and supposed them worthless. But they were not touched by the frost. Was this because the air conducted the heat from the water to the potatoes? If so, why did it not conduct the heat from the potatoes? Was it not rather that the water attracted the frost, if a material thing, with greater power than the potatoes possessed?

I have stated the foregoing facts, that you and your readers may make the most and the best of them, and not to support any vague theory of my own. And as it is not my intention nor wish to disturb the long repose of the theory alluded to, I will stop here, and subscribe myself, your obedient servant, A VERMONTER.

Jan. 14, 1835.

P. S. Since writing the foregoing, the New-England Farmer of Jan. 21st has come. And to your annoyance, and possibly that of your readers, I have read the communication of A. G. in it, upon which I wish to submit a few remarks.

A. G. says, that the greater density of the air is the cause of the greater degree of cold in the valleys. I certainly shall not quarrel with this, for it is the only reason I have assigned for it in calm weather.

But I am not satisfied with his reasons for that effect. He says that air is a great conductor of heat. That is true. But how does this, by itself, account for the greater degree of cold in the valleys. From what, at such times, does it conduct it? As to this we are left in the dark. It may, if possible, conduct it from the frozen earth, colder than itself. But at any rate, the heat which it conducts from the frozen earth, must be in very small quantities, and a very cold kind of heat.

Although the air frequently robs us, in these hyperborean regions, of more heat than we well know how to spare, yet I doubt, whether we ought to charge all the inconvenience we feel from frost to the air.

A. G. says in answer to Mr. Breck's second question, that he thinks if there had been wind on Sunday morning there would have been very little difference in the cold, in the valleys and on the hills; and adduces theoretical arguments in support of his opinion. But these arguments are in direct opposition to the facts I have stated — facts well known in Vermont since the multiplication of thermometers.

The causes assigned for cold and frost are, generally, mere theory, and present the finest topics imaginable for disputation, as they cannot be brought to the "searching" test of facts.

By the Editor.—The facts above stated by our respected correspondent, are, some of them, new to us, and the knowledge they convey may be of much practical utility in agriculture and rural economy. We do not, however, altogether coincide with him respecting the *causes* of some of the *effects*, which have met the attention of his observing mind. For instance, we believe that cold or frost is nothing but the want of or rather a less degree of heat. Likewise, we are of opinion that the heat given out by water while freezing saved his potatoes from frost. But we have not at present time nor room to give the reasons for our belief; and this is not of much consequence, since facts are of much more importance than theories. We hope, some time, to resume the subject, with allusion to the valuable facts with which we have been obliged by "A Vermonter;" and solicit the continuance of his favors of a kind similar to that for which we are already much his debtor.

[From the Cultivator.]

ROOT CULTURE presents many advantages to the stock farmer. Roots are less exhausting to the soil than grain; they are admirably fitted to form a part of a course of crops; are very beneficial in pulverizing the soil; afford abundance of food for grain; and serve to augment and improve the valuable product of the cattle yard. An acre of ground, under good culture, will produce, on a fair average, twenty tons of Swedish turnips, mangel wurzel, carrots, parsnips, or potatoes. Supposing a lean animal to consume one bushel a day, and a fattening animal two bushels, the produce of an acre will then subsist three lean bullocks 110 days, nearly the period of our winter, and three fatting ones 55 days. We merely assume these as reasonable data, and ask if the result does not prove the profitableness of their culture. But we are not permitted to doubt upon this subject, if we credit the testimony of those who have tried them, and whose continuance in the culture is the best proof of their value. Roots enter largely into the system of Flemish husbandry, which has been extolled as inferior to none other; and in many parts of Great Britain, turnips are considered the basis of profitable farming. In our country, root culture is winning its way to notice and to favor. Few who have managed it judiciously have been willing to relinquish it; while others are annually commencing it. The great obstacles to the more rapid extension of the culture among us is the want of experience, the want of proper implements, as drill barrows, cultivators, &c., and the labor of securing the crop in winter. The apparent magnitude of these obstacles is daily diminishing. and we shall ere long discover, that root crops may be cultivated, and secured for winter use, as easily as other farm crops. We have had very little experience in cultivating carrots, parsnips or mangel wurzel, as field crops; but the Swedish turnip has been a favorite crop for some years; and we can truly say, it has been one of the most sure and profitable that we have taken from our grounds.

WINE FROM THE COMMON BRAMBLE.—Five measures of the ripe fruit, with one of honey and six of water, boiled, strained, and left to ferment, then boiled again, and put in casks to ferment, are said to produce an excellent wine.—[Recueil Industriel.]

NEW-YORK AMERICAN.

APRIL 4—10, 1835.

LITERARY NOTICES.

THE SACRED HISTORY OF THE WORLD. By SHARON TURNER. Vol. 2d. HARPER & BROTHERS.—The continuation of this admirable series of letters, will be welcomed with pleasure by those who have perused the first volume of Turner's outlines, and appreciated the entertainment and instruction so folicitously blended in this excellent work. The volume before us carries on the investigation commenced in that which preceded it; and the chief object of its ingenious and learned author has been to observe and delineate the divine economy in its more special referance to mankind, and to exhibit the plans and principles and purposes which seem to have been pursued in respect to them and to the progress of human nature in their successive generations. The work is enriched by the most abundant illustration derived from the most diversified sources; and the fashionable productions of the day—the novels, poems, and travels of the last few years—have supplied the philosophical genius of the author with annotations not less striking than those which he often derives from the most celebrated ecclesiastical and pagan writers.—There are some minds which see good in every thing, which find flowers in barren places, and draw wholesome nourishment from sources which are only fraught with baneful properties for others. To such minds, when bent upon a task like that so happily accomplished by Mr. Turner, the familiar ways of life supply an inexhaustable store-house and armory; and while building up the muniments of religion from the very materials, often, that others have strayed for its destruction, they meet infidelity where its attacks are most dangerous and insinuating, and crush the assailant, as it were, upon our own hearth-stones.

The following view of the position of our first parents in Paradise and of the nature of the trial to which they were subjected, affords a most simple, satisfactory, and beautiful series of comments upon one of the most important parts of the scriptures, and may be taken as a fair specimen of the style of the work before us: *

But although the knowledge of what is good and evil in our actions and emotions is essential, both to right and conduct and to happy life, yet there is also another circumstance, which daily experience, with our own consciousness proves to be as indispensable, and this is SELF-GOVERNMENT; the power and will of spontaneous self-regulation; the habit of always doing what precept, information, and reason show us to be necessary. No one can donbt how impossible it is for any one to act morally or rationally, if this main element of all rectitude and comfort be omitted.

We see and feel its importance every hour. In the present age of the world, we are living, as it were, in an ocean of moral truth, ever flowing about us, and bathing our eyes, and ears, and intellectual feeling, wherever we move or act.—Every censure is precept, and who is without censurers? Every advice is tuition, and who is wanting in advisers? Conversation is mostly a series of criticism on others; and thus we are all lecturing and hearing lectures almost every time we meet. But does this influx and exercise of moral tutorage produce in any a correspondent rightness of conduct? Is this at any time proportioned to our knowledge of what it ought to be? Do we perform the things we ought to do, and abstain from what we ought not to do, because we are fully apprized of the duty, and of the consequences which will follow its neglect or infraction? The answer is patent to us all in our daily memory and consciousness. We follow too much the devices and desires of our own heart. We have the abundant knowledge; we have even the convinced judgment; but we have not the necessary self-government. For this reason, we err and stray from His ways, who would by them lead us to increasing happiness. We offend against his laws, although their wise and benevolent operations would, if they were universally observed, soon expunge all evil from human life and human nature; and were meant and given to us to do. It is this want of self-government, which is the source of so much that is annoying and pernicious in every descendant of Adam and Eve. But it was as requisite to them as it is at this moment to ourselves. All laws, and precepts, and instruction, are but words without it. It must produce and therefore precede the obedience which is desired, and the moral conduct on all occasions, which will be so advantageous, and is to every one so honorable. It was, therefore, a foreseeing act of his divine wisdom, and not less of his philanthropy, that their Creator began his benign education of his new creatures, by the mild imposition of one command—whose direct object was, by an easy and daily effort, to lead them gently to the momentous habit of continual self government; of restraining natural inclination by reason and recollection; of regulating their desires and gratifications, in conformity to rules and tuitions; of feeling sensorial excitement, and yet of preventing it from over-ruling their will and from governing their conduct.

* * * *

All intellectual life in human beings, or in any other, must be guided by the judgment and by moral principle, and therefore by continual self-restraint and by the proper modifications. How rigidly do we exact it from our domesticated animals; and to the credit of their self-government, and of their acquired habits of obedience, how much self-restraint do they not at least learn to exercise, and become in this respect a pattern to us their instructers!

To the human race self-government, according to appointed rules, to socially exacted observances, or to the due feelings and rights of others, is necessary every hour of our living day. It is not in what concerns property alone, or the use of our hands, or our inclinations and passions; but there are the temper, and the speech, and the behaviour to others, that require unceasing self-guard and watchful regulation, from the want of which, so many evils and so much provocation follow.

These certainties make it expedient that all education should begin with the injunction and practice of self-government; and by causing us all to be born as children under parents, it is naturally made to be so. They take care, as long as we are under their direction, that from our cradle until their instructing duty ceases, the habit shall be daily exercised by us; but Adam and Eve had no other parental tutor than their Creator, and it was expedient that they should be practised by him in this fundamental principle: with this view his command was given.

THE PHILOSOPHY OF A FUTURE STATE. By Thomas Dick. 1 vol. KEY & BIDDLE, Philadelphia.—The increasing popularity of the excellent author on this side of the Atlantic, has induced the publication of a uniform edition of his works, which, judging from the specimen before us, will be very handsomely executed. The works already prepared are—

THE PHILOSOPHY OF A FUTRE STATE.

THE CHRISTIAN PHILOSOPHER.

THE PHILOSOPHY OF RELIGION.

THE IMPROVEMENT OF SOCIETY BY THE DIFFUSION OF USEFUL KNOWLEDGE.

Those which are in a course of preparation are—Tbe Mental Illumination of Mankind, or an Inquiry into the Means by which a General Diffusion of Knowledge may be promoted; and *The Scenery of the Heavens displayed*, with a view of illustrating the doctrine of a *plurality of Worlds*. The important and interesting character of these treatises will make them form a most valuable addition alike to the library of the layman and divine. ☞

THE JUVENILE POPULAR LIBRARY—*Domesticated Animals*, 1 vol; Jno. Allen & Co., Boston.—The habits of the brute creation supply an inexhaustible fund of interesting observation to those who will stoop from their "high estate" to study the humbler parts of creation. The dog alone—of whom an ungrateful anecdote has never been told—might make many a biped blush who should read his history in the entertaining little volume before us. But we fear that the long enumeration of his good qualities here, will hardly plead for him when the days of his evil star come round, and the Corporation fist has gone forth. This work, like all that we get from Boston, is very neat in its mechanical execution. ☞

THE KNICKERBOCKER, OR NEW YORK MAGAZINE, April 1.—Our two popular magazines for this month come to hand at the same time, but, as in duty bound, we give the first place to the elder of the two. The present number of the Knickerbockor, like those which have for some time preceded it, is enriched with articles from a great variety of popular pens—is exceedingly well printed—and contains more than a hundred pages of diversified reading. We select the following from several pieces of poetry, by Mrs. Sigourney, and others equally well known to fame:

The Silent water.

BY THE AUTHOR OF 'GUY RIVERS,' 'MARTIN FABER,' ETC

When that my mood is sad, and in the noise
And bustle of the crowd, I feel rebuke,
I turn my footsteps from its hollow joys,
And sit me down beside this little brook:
The waters have a music to mine ear
It glads me much to hear.

It is a quiet glen, as you may see,
Shutin from all intrusion, by the trees
That spread their giant branches, broad and free,
The silent growth of many centuries;
And make hallow'd time for hapless moods,
The Sabbath of the Woods.

Few know its quiet shelter,—none, like me,
Do seek it out with such a fond desire,
Poring, in idless mood, on flower and tree,
And listening as the voiceless leaves respire,—
When the far traveling breeze, done wandering,
Rests here his weary wing

And all the day, with fancies ever new,
And sweet companions from their fruitful store,
Of merry elves, bespangled all with dew,
Fantastic creatures of the old-time lore,—
Watching their wild but unobtrusive play,
I fling the hours away.

A gracious couch,—the root of an old oak,
Whose branches yield it moss and canopy,—
Is mine: and so it be from woodman's stroke
Secure, shall never be resign'd by me:
It hangs above the stream that idly plies,
Heedless of any eyes.

There, with eye sometimes shut, but upward bent,
Sweetly I muse through many a quiet hour,
While many a sense on earnest mission sent,
Returns, thought-laden, back with bloom and flower;
Pursuing, though rebuked by those who moil,
A profitable toil.

And still the waters, trickling at my feet,
Wind on their way with gentlest melody,
Yielding sweet music which the leaves repeat,
Above them, to the gay breeze gliding by,—
Yet not so rudely as to send one sound
Through the thick copse around.

Sometimes, a brighter cloud than all the rest,
Hangs o'er the archway, opening through the trees,
Breaking the spell that, like a slumber, press'd
On my worn spirit its sweet luxuries,—
And with awakened vision upward bent,
I watch the firmament.

How like its sure and unisturb'd retreat,
Life's sanctuary at last, secure from storm,
To the pure waters trickling at my feet,
The bending trees that overshade my form;
So far as sweetest things of earth may seem
Like those of which we dream.

Thus, to my mind, is the philosophy
The young bird teaches, who, with sudden flight
Sails far into the blue that spreads on high,
Until I lose him from my straining sight,—
With a most lofty discontent to fly.
Upward, from earth to sky.

W. G. S.

THE AMERICAN MONTHLY, for April, exhibits a marked improvement in its typographical department, and the reader will find in the present

number ample fulfilment of our prophecy, as to the literary merits of this Magazine. "The Chevalier Bayard and the Fair Widow," is a graceful and entertaining story, sustaining throughout an admirable tone of legendary simplicity. The article entitled "A Hundred Years Ago," is a great improvement upon what was well commenced in the last number, a comparative view of the world now, and a century since. The writer evinces unusual and varied erudition, and a witty, polished, and vigorous style. His promise of a continuation of his sketches, will, we trust, be fulfilled. "The Voice of the Streamlet," from the initials, we take to be from the pen of the clever and popular author of Guy Rivers. "The Gallery of a Misanthrope," we cannot altogether commend: it is outre and original to a degree that rather transgresses the rules of good taste; but it is written with decided vigor and power. "Public Instruction," noticing Cousin's work on the state of Public Instruction in Prussia, is a grave and learned essay, and exposes very cleverly our popular error in supposing the standard of education in this country to be more elevated than elsewhere; and points out deficiencies and evils, the correction of which requires vast and determined exertion.

"The Fortunes of the Maid of Arc," is one of the most brilliant sketches which we have seen from the pen of its brilliant author. We have often had occasion to commend his productions, and know few periodical writers who so uniformly sustain the interest and ability of their performances. The hawking scene, with which it opens, is worthy the happiest mood of the author of Richelieu. The other articles of the work, including the literary notices, we have not examined, with the exception of Benedict Arnold, which is a strong and manly paper upon the subject of American Biography, and which we should like to see followed up by others in the same vein. ☞

FOREIGN INTELLIGENCE.

Thirty Days Later from Europe.

By the Roscoe, Capt. Delano, from Liverpool, 12th March, we have very late and interesting news. The Caledonia, Capt. Graham, of the 21st from Liverpool, and the Utica, Capt. Depeyster, of the 28th February, from Havre, have also arrived.

In addition to our regular files by the Roscoe, which are London to the evening of the 10th, and Liverpool of the 12th, inclusive, we have, through the politeness of Capt. Delano, a London paper of the 11th.

We find in the Liverpool Advertiser of the 12th March, the following extract of a letter from Captain E. Rossiter, of the Silas Richards, dated Studwall Roads, March 3, 1835:

"It is with sincere regret I have to inform you of my being here. Last night, at eleven o'clock, off Wicklow Head, the night dark and blowing fresh, I came in contact with the brig Sarah, from Liverpool to Charleston, which vessel soon filled and sunk. I have the Captain, his wife, and eight of the brig's crew on board. I am sorry to inform you that we lost our bowsprit, there being a heavy sea on, the foremast, main topsail yard, fore topgallant yard, cross-jack yard, &c.; in fact the ship is a complete wreck in rigging, hull and sails. The sea was so high and the ship laboring so hard that there was no time to be lost in clearing the wreck. We therefore cut away as fast as we could; the only thing left to carry sail on was the main yard."

The Paris dates are to the 9th, from which we learn that the indemnity bill had not been acted upon. It was, however, believed that it would be, and that the result would be favorable, although it is pretended that important documents are in the hands of the Duke of Fitz James, which had not been laid before the committee.

The French Ministry is again dissolved, and it would seem a matter of no small difficulty to re-organize it.

It will be seen that the PEEL Ministry have been twice defeated in the House of Commons; yet they, however, still retained their places, and Mr. Peel is reported to have said, that "he hoped and believed he should be able to carry on the Government."

A great effort has been made to repeal the malt tax.

DEATH OF THE EMPEROR OF AUSTRIA.

Later accounts than those contained in the following paragraph as will be seen, intimate a continuance of the long prevailing policy of Austria, and of the entire success of Metternich.

The Moniteur of Saturday, contains a telegraphic despatch from the French Chargé d'Affaires at Vienna, stating that the Emperor of Austria died suddenly at one o'clock in the morning of the 3d inst. He was in his 67th year, and had been Emperor, first of Germany and then of Austria, since 1804. He is succeeded by his son Ferdinand, now 42 years of age. This event, it is probable, will cause a great change in the future policy of the empire, as the present emperor is said to entertain a strong dislike against Prince Metternich.

The Courier of the 10th has the following rumor, which is fully sustained by the latest accounts from Paris.

"It is reported that accounts have been received from Vienna, by express, stating that Prince Metternich has received from his Emperor the same unlimited confidence shown to him by the late Emperor of Austria."

The Paris correspondent of the London Times points out a cause of difficulty amongst the Powers of the Holy Alliance.

The Presidency of the Germanic Diet, is now likely to set Prussia and Austria at variance. The mass of the Germans have long looked at Austria, whose possessions in Germany form but a small part of that empire, with great jealousy and dislike. By the true Germans she is invariably spoken of as not a German Power, and they desire to see the Presidency of the Diet conferred on Bavaria or Prussia. The claims which FRANCIS derived from his age, and from having been Emperor of Germany, will not devolve on his son, whose title to the Presidency may probably be disputed with success by either of the two other powers just mentioned. The Emperor of Austria cannot make up, we believe, by commanding talents, for want of the advantages possessed by the late Emperor. Prince METTERNICH will, of course, desire to retain the Presidency for Austria. We have both German and Dutch papers this morning, but they do not allude to this subject, and do not otherwise bring any intelligence.—[Courier.]

The London Courier of 10th March says: "We have received Lisbon papers to the 23d of February inclusive, which announce a change in the Portuguese Ministry, the particulars of which are stated elsewhere. The Legislature is carrying on its measures of improvement quietly. The Project of the Law for the sale of national property was still under discussion, as was a law for excluding from all their titles, employments, and decorations, several numerous classes of functionaries who served under the Usurper."

Opening of Parliament, Election of Speaker and Defeat of Ministers.

"Parliament was opened with the usual pomp and formality, on Thursday Feb. 26, by the King in person. His Majesty, on his progress to, and arrival at the Parliament-house, was respectfully if not enthusiastically, received by his loyal subjects, who, whatever might have been their feelings, touching the recent exercise of the prerogative in the dismissal of the Melbourne Ministry and in the dissolution of the first Reformed House of Commons, never forget, even while disapproving and condemning those acts, that to William the Fourth the nation owes a debt of gratitude for his early, and for a time consistent, support of the cause of constitutional reform."

SPEAKER OF THE HOUSE OF COMMONS.—The Reformers carried their candidate for Speaker, Mr. Abercromby, by a majority of 10 votes, thus:—

For Mr. Abercromby, ...	316
For Sir C. M. Sutton, ...	306
Majority for Mr. Abercromby, . .	10

On the announcement of the division, the cheers both within and without the House were deafening beyond precedent.

SECOND DEFEAT OF MINISTERS.—In the House of Commons February 26th, after a debate of three days, an amendment to the Address in reply to the King's Speech, moved by Lord Morpeth, was carried against Ministers by a majority of 7.

LONDON, Feb. 24.—This day his Majesty proceeded in state to the House of Lords, and delivered the following speech in a firm tone of voice.

"MY LORDS AND GENTLEMEN—I avail myself of the earliest opportunity of meeting you in Parliament after having recurred to the sense of my people.

"You will, I am confident, fully participate in the regret which I feel at the destruction, by accidental fire, of that part of the ancient Palace of Westminster which has been long appropriated to the use of the two Houses of Parliament.

"Upon the occurrence of this calamity, I gave immediate direction that the best provision of which the circumtsances of the case would admit should be made for the present meeting; and it will be my wish to adopt such plans for your permanent accommodation of the two Houses of Parliament as shall be deemed on your joint considerarion, to be the most fitting and convenient.

"I will give directions that there be laid before you the Report made to me by the Privy Council in reference to the organ of the fire, and the evidence upon which that Report was founded.

"The assurance which I received from my Allies, and generally from all Foreign Princes and States of their earnest desire to cultivate the relations of amity, and to maintain with me the most friendly understanding, justify on my part the confident expectation of the continuance of the blessings of peace.

"The single exception to the general tranquility of Europe is the civil contest which still prevails in some of the northern provinces of Spain.

"I will give directions that there be laid before you Articles which I have concluded with my Allies, the King of the French, the Queen Regent of Spain, and the Queen of Portugal, which are supplementary to the Treaty of April, 1834, and are intended to facilitate the complete attainment of the objects contemplated by that Treaty.

"I have to repeat the expression of my regret that the relations between Holland and Belgium still remain unsettled.

"Gentlemen of the House of Commons—I have directed the Estimates for the ensuing year to be prepared, and to be laid before you without delay.

"They have been framed with the strictest attention to economy, and I have the satisfaction of acquainting you that the total amount of the demands for the public service will be less on the present than it has been on any former occasion within our recent experience.

"The satisfactory state of the trade and com-

merce of the country, and of the public revenue, fully justifies the expectation, that notwithstanding the reductions in taxation which were made in the last session, and which, when they shall have taken effect will tend to diminish the existing surplus of the public revenue, there will remain a sufficient balance to meet the additional annual charge which will arise from providing the compensation granted by Parliament on account of the abolition of slavery throughout the British dominions.

"I deeply lament that the agricultural interest continues in a state of great depression.

"I recommend to your consideration whether it may not be in your power, after providing for the exigencies of the public service, and consistently with the steadfast maintenance of the public credit, to devise a method for mitigating the pressure of those local charges which bear heavily on the owners and occupiers of land, and for distributing the burden of them more equally over other descriptions of property.

"My Lords and Gentlemen—The information received from the Governors of my Colonies, together with the Acts passed in execution of the law for the abolition of slavery, will be communicated to you.

"It is with much satisfaction that I have observed the general concurrence of the Colonial Legislatures in giving effect to this important measure; and, notwithstanding the difficulties with which the subject is necessarily attended, I have seen no reason to abate my earnest hopes of a favorable issue.

"Under all circumstances, you may be assured of my anxious desire and unceasing efforts fully to realize the benevolent intentions of Parliament.

"There are many important subjects—some of which have already undergone partial discussions in Parliament—the adjustment of which at as early a period as is consistent with the mature consideration of them, would, be of great advantage to the public interests.

"Among the first in point of urgency is the state of the tithe question in Ireland, and the means of effecting an equitable and final adjustment of it.

"Measures will be proposed for your consideration which will have for their respecting objects—o promote the commutation of tithe in England and Wales, to improve our civil jurisprudence and the administration of justice in ecclesiastical causes, to make provision for the more effectual maintenance of ecclesiastical discipline, and relieve those who dissent from the doctrines or discipline of the Church from the necessity of celebrating the ceremony of marriage according to its rites.

"I have not yet received the Report from the Commissioners appointed to inquire into the state of Municipal Corporations, but I have reason to believe that it will be made, and that I shall be enabled to communicate it to you at an early period.

"I have appointed a Commission for considering the state of the several Dioceses in England and Wales, with reference to the amount of their revenues, and to the more equal distribution of episcopal duties; the state of the several Cathedrals and Collegiate Churches with a view to the suggestion of such measures as may render them most conducive to the efficiency of the Established Church; and for devising the best mode of providing for the cure of souls, with reference to the residence of the Clergy on their respective benefices.

"The especial object which I have in view in the appointment of this Commission is to extend more widely the means of religious worship according to the doctrines of the Established Church and to confirm its hold upon the veneration and affections of my people.

"I feel it also incumbent upon me to call your earnest attention to the condition of the Church of Scotland, and to the means by which it may be enabled to increase the opportunities of religious worship for the poorer classes of society in that part of the United Kingdom.

"It has been my duty on this occasion to direct your consideration to various important matters connected with our domestic policy

"I rely with entire confidence on your willing co-operation in perfecting all such measures as may be calculated to remove just causes of complaint, and to promote the concord and happiness of my subjects.

"I rely also with equal confidence on the caution and circumspection with which you will apply yourselves to the alteration of law which effect very extensive and complicated interests, and are interwoven with ancient usages to which the habits and feelings of my people have conformed.

"I feel assured that it will be our common object, in supplying that which may be defective or in renovating that which may be impaired, to strengthen the foundations of those institutions in Church and State which are the inheritance and birthright of my people; and which amidst all the vicissitudes of public affairs, have proved, under the blessings of Almighty God, the truest guarantees of their liberties, their rights, and their religion."

His Majesty then retired; a royal salute was fired, and on his return to the palace the same mixed denomstrations of popular sentiment were observable.

Tde House adjourned till five o'clock, when the Lord Chancellor took his seat on the Woolsack, and his Majesty's speech was read.

Toulon, Feb. 24.—We are assured that instructions have been sent to the Commander of the Bellona frigate, which has just left our port for Mahon, to remain there, in order to keep in observation the American squadron which is to rendezvous in that port. On the same account, orders have been issued for several maritime armaments to be held in readiness to act until the issue shall be known of the pending discussions between France and the United States.

PORTUGAL.

Lisbon, Feb. 23.—The change of Ministry which has been in contemplation for some time has at length taken place. The Duke of Palmella has accepted the office of Minister for Foreign Affairs; the Bishop of Coimbra has been raised to the peerage, and, in consequence, has resigned the Home Department, which has been given to Freire—the latter has been, as you know, Minister of Marine; and Count Villa Real has been appointed to the office thus left vacant.

We are here perfectly quiet. The Cortes and the Government apoear, at present to go in present in perfect unison.

GREECE.

Athens, Jan. 21, 1835.—The latest intelligence received from the Morea represents that peninsula to be in a very disturbed state; and it appears that in the districts of Messeina, which were last year the scene of civil discord, discontent is most openly manifested.

The basis of a treaty have been entered into between our government and Mr. George Cochrane, for the establishment of a line of steam-packets between Marseilles, Malta, Athens, Lyia, and Turkey.

TURKEY.

Tremendous Conflagration.—Two thirds of the city of Adrianople, the quarter inhabited by the Greeks, was on the 24th Feb. destroyed by fire. The value of English manufactures destroyed is said to have amounted to 2,000,000 piastres.

Advices from Constantinople to 28th January state that the insurrection in Albania was at an end. The troops were returning.

London, March 5th.—The following intelligence from Levant has been brought by a vessel which left Alaxendria on the 23d of January, and has just arrived in France, after touching at Malta—"As soon as the departure of the English squadron was known at Constantinople, three Russian ships of war passed the Dardanelles, and have, it is said, cast anchor at Mytilene. A fourth ship, which left the straits at the same time, is gone to take up her station at Tenedos. The Admiral at Malta has sent notice of these movements to London. On the 28th of January, the squdron of Josias Rowley, had been several days at Malta. The retreat of the English squadron is attributed to a promise made by Russia to the Porte, to relieve it from the importunate presence of the English—a promise, the fulfilment of which is due to the good will of the Wellington Ministry."

Paris, March 5.—The new Ambassador from the Ottoman Court to that of London, Nouri Effendi, arrived at Paris yesterday, and alighted at the hotel of the Turkish Embassy.

On the 21st ult. Don Miguel was at Rome, leading a retired life.

Sir Charles Manners Sutton, the discomfited candidate for the Speaker's Chair, had been called to the peerage by the title of Lord Canterbury.

Sir Francis Burdett, the long tried friend of the people, has given great umbrage to his constituents, by voting for the re-appointment of Sir C. M. Sutton, as Speaker of the House of Commons.

Mr. Cobbett, after stating that he could not vote for Mr. Abercromby, left the House.

A debate had taken place in the house on Canada affairs, in which the ministers had expressed their intention to send out a commissioner to Canada, with full powers to act on the questions which agitated that part of the British dominions.

The *Morning Herald*, which originated the gossip about the Queen, stated, on Friday,—"We have authority to say that there is no truth in the statement which has lately been circulated as to the interesting situation of her Majesty the Queen."

The price of gold is raised; it is now 3*l.* 17*s.* 10 1-2*d.* per ounce.

Raise of the Cotton Trade.—In the beginning of the reign of George the Third (1760) this trade gave employment to 40,000 persons, and the value of the goods produced was 600,000*l.*—It now employs not less than 1,500,000 persons, and the value of the goods produced exceeds thirty-one millions. The cotton yarn annually spun in England would, in a single thread, girdle the globe 203,775 times; it would reach fifty-one times from the earth to the sun, and it would encircle the earth's orbit eight times and a half. —[Athenæum]

Henry Hunt,—Well known as one of the greatest demagogues that ever lived, died recently in England. The London Standard says, he "was seized, about three weeks ago, with a violent attack of paralysis, when in the act of stepping from his phaeton, which deprived him of the power of speech, and threatened immediate dissolution; but, by the prompt administration of active remedies, the immediately alarming symptoms were subdued, and his friends, who were best acquainted with his vigorous constitution and powerful frame, indulged hopes that years might be added to his life, although his medical attendants gave no expectations of his ever recovering the use of his left side. During his illness Mr. Hunt enjoyed the perfect use of his faculties, and maintained a composed and even cheerful demeanour throughout. On Tuesday last, a return or unfavorable symptom rendered it necessary to call in the aid of Dr. Lightfoot, from Winchester, who abandoned all hopes of his recovery, and since that day he gradually sunk till Friday, when upon his busy and active life the scene closed forever. He had recently left London, on a journey of business into the west of England. Mr. Hunt was lord of the manor of Glastonbury, in Somerset, and possessed some property in the city of Bath, as well as in the vicinity of Bristol. He had been bred a farmer in Somerset, and was afterwards a brewer in Bristol; and during the last twenty-five years had been a Radical Reformer. He died possessed of but a small property. He was an exceedingly good farmer, and a man much devoted to field sports. He was considered a first-rate shot, and a skilful angler; and as a fly-fisher, was equal to the celebrated Isaak Walton.

The name of Henry Hunt will long be remembered, in association with the "Manchester Massacre"—he was chairman of the meeting on that occasion. He was the session before last M. P. for Preston—and latterly extensively engaged in manufacturing blacking.

London, March 3.—From the following extract which is taken from the Brest Journal of the 24th ult., it will be seen that public opinion is not very favorable to the idea of a speedy settlement of the American claims:

"Several applications for letters of marque

have been sent from our department to the ministry. The Minister of Marine has replied to one of these applications, that in the uncertainty which prevails respecting the issue of the difference with America, he could not at present positively accede to this application, but that he would take due notice of it, promising to pay attention to it if occasion should arise."

PARIS, March 3.—There are terrible accounts in the Moniteur of the consequence of the gale on the African coast.

The Duke of Gordon had been robbed of jewelry to the amount of £10,000.

A letter from Florence, of the 9th of February, says that on the 7th, at 50 minutes past 7 in the evening, several shocks of an earthquake had been felt there. No damage had been done, except some trifling injury to the Castles of Lucco and Vecchio, nor had any persons been hurt.

COPENHAGEN, Feb. 28th.—I hasten to inform you that the address I spoke of, signed by near 600 individuals, most of them persons of high standing in the esteem of their fellow citizens, has been—not carried up by a deputation, but—smuggled by a back door into the palace of the King. His Majesty has been pleased, through its medium, to reply to the petition of his subjects in the terms following:—

"We have seen with surprise that a body of our dear and faithful subjects have petitioned us to make an alteration in the existing law of the press; for, as it constantly has been the object of our paternal solicitude to do all that lay in our royal power, tending to promote the welfare of the State, and the People, so, likewise, none but ourself alone can be in condition to judge of what is to the true good and benefit of both—an object which it will be our care to promote, in the time to come, with the same zeal and unabated love for our people as heretofore. We pray God to take you into his holy keeping.

IMPORTANT FROM FRANCE.—The packet ship *Francois I.*, Capt Castoff, from Havre, came up yesterday. She sailed from Havre on the 13th ult. The packet Silvie de Grasse, from this port, arrived on the 10th. The market for Cotton continued lively.

A letter from Paris of the 10th March, says—"We remain still without any Ministry being formed, and it appears that the difficulties rather increase than diminish. This is particularly to be regretted, as the report of the Committees on the American question is ready to be made, and is waiting only for a Ministry to present it. Let the Ministers be who they may, it will pass by a large majority.

[*From the Canton Register.*]

Population of China.

The Roman empire, including the provincials and conquered nations, is said to have comprehended, under the Antonies, about 120 millions of inhabitants. The extent of its territory was fully equal to China proper; and although some of the provinces were only lately reclaimed from barbarians, and therefore by no means well cultivated, its ancient possessions in Europe, Asia, and Africa, were, if not superior, at least equal in populousness to China. From whence does then arise the disparity between 120 and 361 millions? Luxury, as well as the frequent wars may have thinned the population, but they cannot have reduced it to such odds.

In our humble opinion, we can cherish no doubts about the correctness of the imperial statement, that the numbers are according to a well authenticated census, as near to the truth as possible, but we state freely some difficulties, which wiser men than ourselves will be able to remove.

In Shing-king or Leaou-tung, the imperial statistics, estimate the census to 942,003; now we have visited some districts of this territory ourselves, and with all allowances for mistakes, we suppose that the number of inhabitants must at least be four-fold. In Kirin, it is said that there are only 307,761 inhabitants. We know that this country is extremely thinly inhabited, but this census would only give 11 inhabitants to a square mile, which is incredible, on account of the continued influx of Chinese. In Teitsthan there are only 2398 families, which considering the numerous tribes living scattered throughout this extensive country, must be far below the truth. Perhaps those only who pay tribute, and serve in the militia, are included in the number. We will not now discuss the census of Kokonor and of Ele (the same remarks apply to this country) but merely intimate, that the numerous Mongul tribe is not comprised under the 361 millions.

So far as we have seen, the census is below the actual number, but in some provinces it is the reverse, Butrwe are rather cautious to advance opinions, which might militate against facts, that give here the list of the extent and population of each province.

Pe-chih-le; extent, 58,949 square miles; inhabitants 27,990,874; upon each square mile 473.

Shon-tung; extent, 65,104 s. m. inhabitants 28,958,764 upon each s. m. 515.

Keang-nan (the two provinces Keang soo Ganhwwy) extent, 92,961 s. m. inhabitants 72,-011,560 upon each s. m. 774.

Shan-se; extent, 55,268 s. m. inhabitants 14,-004,210; upon each s. m. 253.

Honan; extent, 65,104 square miles. Inhabitants 23,037,171: upon each s. m. 354.

Keang-se extent, 721,176 square miles, inhabitants 30,426,999; upon each s. m. 421.

Fokien; extent, square miles 53,480, inhabitants, 14,777,410; upon each s. m. 276.

Che-keang; extent, square miles 39,150 inhabitants 36,256,784; upon each s. m. 671.

Hoo-pih and Hoonan; extent, square miles 144,770, inhabitants 46,022,605; upon each s. m. 317.

Shense and Kan-suh; extent, square miles 154,008, inhabitants 25,420,381; upon each s. m. 164.

Sze-chuen; extent, 166,800, square miles, inhabitants 21,435, 678; upon each s. m. 128.

Kwang-tung; extent, 79,456 square miles, inhabitants 19,174,030; upon each s. m. 241.

Kwang-se; extent, 78,250 square miles, inhabitants 7,317,895; upon each s. m. 93.

Yun-nan; extent. 107,869 square miles, inhabitants. 5,561,320; upon each s. m. 51.

Kwei-chow; extent, 64,554 square miles, Inhabitants 5,288,219; upon each s. m. 82.

We ask the political economist, whether 774 human beings can live upon one square mile, which is thrice the population of England, where only 225 live upon the same spot. If, however, the census of Ganhwuy and Keang-soo is correct, we are persuaded, that there is no spot upon the whole globe which is so thickly populated; nor can a larger number possibly live upon the same extent of territory. Keang-soo, moreover, is full of lakes, and has also considerable marshes, which are of course not arable. The utmost industry can subsist the cultivator, yet he has nothing to spare from his hard earned produce; and nevertheless both Gan-hwuy and Keang-soo have very largely to contribute towards the maintenance of the imperial court. Shan-fung and Che-keang are mountainous provinces, with many barren tracks and unproductive plains, yet according to the imperial census the former has 515 and the latter 671 inhabitants upon each square mile.—We allow the Chinese to be a most frugal people, who do not require half the extent of territory to maintain themselves as an European would need, to live in a state of comfort, but can 617 human beings find subsistence in so small a space? Surely if the imperial statistics are correct, the populousness of Keang-so, Gan-hwuy and Che-keang overthrows the theory of Malthus. Pihchile is apparently barren, but has nevertheless 473 inhabitants upon the square mile.

We are also at a loss to find out why Yan-nan should have fewer inhabitants than Kwei-choo, the most unproductive of all the provinces, nor can we make out why Kwan-tung and Honan, both possessing a dense population, should not have an equal number with Che-keang upon each square mile, whilst the former is only one third, the latter one half as populous.

It is not with a view to impeach the statements given in the Repository, that we write this, but we are anxious that our doubts should be solved for our own satisfaction. Upon the whole, we think that the total amount of 361 millions is not too much for the Chinese empire. It is very evident, that the Chinese are the most prolific nation on the globe. Instead of conquering other nations like the Romans, they took possession by the numerical force of their population, colonized and spread until mountains and deserts prevent their farther progress. A nation like the Chinese, so numerous, guided by the same laws, attached to the system of the ancients, were more likely to abide the subjects of one prince, than the heterogeneous tribes who acknowledge the sway of the Romans. The striking characteristics, which doubtless constitute the Chinese nation a people distinct from all human kindred, contributed much to that unity of design, which caused them to abhor foreigners and to crowd under the proection of their native leaders.

Has China ever been so populous as it is now? Can a nation continue to increase in proportion, without absorbing finally all resources? These are, the questions which we should fairly ask, to come to a satisfactory conclusion. The rising generation is at the present moment so great, as to frighten the mandarins, who tremble at the prospects before them. Fully persuaded, however, that in the providence of God, the population keeps pace with the means of subsistence and if increasing to excess, finds an outlet in emigration, we fondly hope that the threatening evil may be averted from this empire. Mantchoria presents a still larger field for Chinese colonists, they may also find uncultivated lands on the western frontiers, and may even send colonies to the west coast of America. It is very obvious, that this great mass of mankind is near a grand crisis. The world has changed, without their partaking in those changes, and it will be finally their turn to yield to the common impulse given from the west. If a handful of barbarians from the desert, could change the face of the country, should the enlightened spirit of enterprise, which now pervades Europe, remain dormant on its approach to the Chinese frontiers? We should regret if so many millions got into a state of fermentation, for the consequences would be awful; but if they do not advance with the world, they will sooner or later fall a sacrifice to their stubbornness.

Intelligent Chinese in reading this paper might perhaps quote a passage of their sages, and leave matters to proceed in their natural course, whilst they with all their countrymen perseveted in the beaten track. Such is also the maxim of the government; nothing influences it but rare necessity. Time is on the wing with its revolutions, but they do not heed this flighty companion, until it is too late to keep pace with him.

SUMMARY.

NEW YORK CITY has a greater population than either of the States of Rhode Island, Delaware, Mississippi, Louisiana, Illinois, or Missouri.

Defence of New Orleans.—The steamboat Henry Clay passed down the river, opposite Natchez, on the 5th ult., with fifty tons of cannon balls, bound to New Orleans. A hundred tons of cannon have been ordered from the Pittsburg foundry for the same post—at least so says the Natchez Courier.

NEW CATHOLIC CONVENT.—The Church of Rome has appropriated $60,000 for the establishment of a Catholic Convent, at Bertrand, Michigan.

Meeting of Wool Growers.—A meeting of a number of the wool growers of the County of Franklin was held at Shelburne Falls, on the 27 ult. A corresponcing committee of eleven members was appointed, who were requested to ascertain the number of fleeces raised for the market in their respective towns, and to report at an adjourned meeting on the 20th of May. The Franklin Mercury states, that the proceedings of the meeting are preparatory to the establishment of a general wool market, to be held in some central place in the wool growing district.—[Boston Daily Advertiser.]

Another Steamboat sunk.—The Steamboat Sheldon Thompson was discovered about daylight this morning, sunk at her moorings near the south bank of Buffalo Creek, opposite the Storehouse of J, Mayhew & Co. She lies with the principal part of her main deck under water. No satisfactory cause has been assigned for this fresh disaster.—[Buffalo Com. Adv.]

[*From Tait's Magazine.*]

Private History of the London Newspaper Press.

"If I live to return to London, I will tear the mask off these men, and show the public what sort of persons they are who thus govern the world under the mysterious appellation of 'We.'" —[Speech of D. O'Connell, Esqr., at Dublin, November.]

Mr. O'Connell, you are right. It is due to justice, to honor, to liberty, and to the magnanimous character of this nation, that these men should be unmasked. When so vast an influence is exercised by the Press, it is merciless that the mask should be worn: the most distinguished of our public men, themselves unprotected by the vizor, have thus fallen by mysterious hands—stabbed in the back by men who fight upon the 'vantage ground. As circumstances have given us an extensive knowledge of the *personell* of the Press, we are willing to lend a passing hand in this good cause—thus doing for you and for the world, what neither you nor the world, without such assistance, can have the means of doing for yourselves.

The order to be observed, in our account of the Newspaper Press, is evidently to examine its divisions as they principally appear before the public eye. These are, *first*, the Morning Daily Newspapers; *second*, the Evening Papers; and *third*, the interminable varieties of the Weekly Press.

Accordingly, we proceed to raise the curtain upon the operators at the morning newspapers, commencing with that monarch of periodical literature—the all powerful *Times*.

The Times is a joint-stock company. It is held in twenty-four shares, which, in the time of the late Mr. Walter—the father of the present honorable member for Berkshire—were sold at the low rate of £100 per share. Through the exertions of that talented, high minded, and much-persecuted man, and the continued exertions and talent displayed by his son, this once insignificant concern has risen to its present extraordinary height of prosperity and power in the political world. It is now valued at the rate of £20,000 per share. Of the number of shares, sixteen, or two-thirds of the whole, are the property of Mr. Walter himself—he deriving from his interest in the Times an income of more than £20,000 per annum—and this continually on the increase. For many years he was the managing proprietor—receiving an additional allowance of £2,000 per annum; but since the acquisition of his very enormous fortune, he has retired from Printing-House Square, and set up in the capacity of a country gentleman. He now, in no way whatever, interferes in the management of the Times.

The great gun of the establishment is now a Mr. Sterling. This gentleman was a captain in the army, and served in the Peninsular War. He is well known to the Duke of Wellington; and though no longer connected with the service, he yet continues to reside at Knightsbridge, opposite the horse barracks, and in the constant society of military men. He is the writer of the principal leading matter in the Times—all the "thunder" of that journal having, for now a number of years, proceeded from his pen. He first introduced himself to the concern by sending in a series of letters under the signature of "Vetus," the brilliancy of thought of which procured him an engagement upon terms which have been continually increasing to his present great salary of £1500 per year. Mr. Sterling has, however, no connection with the general business of the establishment, receiving that large income only for sending in from his own fireside the principal leader of the day. He is possessed of the most rapid and extraordinary powers of composition—sometimes producing in a single hour a full column of matter—compared to which nothing certainly has been seen in the political literature of England since the days of Swift. It is mere style however, for which this gentleman is distinguished; for, in the impetuosity and fire of his mind, political principles are deserted, returned to, and deserted again, with all that rapidity wich gives so strong a character for inconsistency to the politics of the Times. This has often been felt by the proprietors; but so military are his deportment, habits, and political views, and so proud and unmanageable the temper of the man, that they are compelled to bear much upon this head, for the influence derived from the power and splendor of his style. Thus does Mr. Sterling carry over the Times to which camp he will. The present support of the government of the Duke of Wellington is entirely attributed to him. It is not asserted, however, that there is any thing corrupt in his motives—for Mr. Sterling is a man who would neither brook the control nor touch the mercenary gold of the mightiest monarch on the globe. The public may rest assured that he never will be enslaved to any party whatsoever, nor part with the power to dash into ten thousand pieces all who dare to prove disobedient to his will. Thus, in his rage at being baffled in his efforts to prevent the passing of the Poor-Law Bill, he has mercilessly malleted out the brains of the fallen tumbler of Vauxhall. The somewhat brutal attacks upon Mr. O'Connell respecting his rent—an affair altogether of a private nature between himself and those who choose to retain him in the service of his country; the scorn heaped upon that invaluable public servant, whom he designates as a "Mr. Joseph Hume;" the abuse of that accomplished politician, "his apprentice Roebuck," who presumed, contrary to the will of Mr. Sterling, to prevent a contemptible little Tory from becoming the representative for Bath; all the abuse of the "dirty Radicals," the "Kensington butcher," and the "Brummagen Hampden," proceeds from the pen of this Man in the Iron Mask. So great his power for evil or for good, and so savage is the use which he latterly has made of its abilities, that it really is high time that the people of England should know something of the profession and temper of a man, who thus, from his house at Knightsbridge, can fling down, as he would make-believe, Ministers of State, and make and mar whom he will. Let us hope that he will become more moderate now that he is known, and that these lines will be felt as a salutary hook in the nose of this leviathan of all the waters of the political world.

Next in importance as manager, or what is termed "the responsible editor" of the Times, is a gentleman named Barnes. The thunder has long been wrongfully attributed to him. He seldom, indeed, produces original matter of any kind—and then principally upon subjects of literature and the fine arts. He is an excellent linguist, and a very learned and accomplished man. He is also an indefatigable man of business, and, by night and by day, none can labor harder at the wheel. His salary is 1000*l.* a year, and he is now the possessor of one-half of a twenty-fourth share in the concern. Possessed of a well-ordered and very comprehensive mind, this gentleman carries on, with infinite ability, the whole machinery of the vast establishment of Printing-House Square. Whether in the appointment of correspondents abroad, or in the selection of the corps of reporters and others, who in numbers are supported from the profuse and well directed expenditure of the establishment, the discernment of Mr. Barnes is seen in every number of the Times. He exacts the most implicit obedience to his will; and, excepting the mighty Mr. Sterling, all bow down to Mr. Barnes. In politics his views are favorable to liberty—he feels the dignity of his post, despises all attempts to draw him from his own course—has no disposition abuse his power, and is, in every respect, a fair and honorable man. Therefore we advise him to live further from Printing-House Square than his present house in the borough; and thus, taking more pedestrian exercise, endanger not himself, from huge overgrowth of body and from over exertion of the mind—to that kind of dissolution—which comes "as butcher fells an ox."

The division of the Times called "the city article," is written by Mr. Alsager, a gentleman in Birchin Lane. He has the large salary of £800 per annum, which he, indeed, very amply deserves. Mr. Alsager is possessed of the most comprehensive knowledge of the principles of commerce & finance, through which he has rendered important services to his country through the columns of the Times, and also, by well directed speculations, procured a considerable fortune for himself. His opinions are of great weight amongst the monetary bodies in the city, and many a tremendous blunder his warnings have prevented amongst the men who, seated in a parlor in Threadneedle street, have the keeping of the welfare of the millions of the greatest empire on the earth. Were things well ordered in this commercial community, such men as Mr. Alsager would become Chancellors of the Exchequer and the like. Sheep-feeding Lords make sad slaughter in finance.

Mr. Bacon is the sub-editor of the Times; he and Mr. Murray write well and in a smooth style. Mr. Walters himself has not force enough for the Times; and, knowing that Mr. Barnes has a decided objection to his matter, he has long had too much judgment to attempt any thing of the kind. The productions of Mr. Sterling have been frequently attributed to Lord Brougham. Every possible precaution is taken to conceal this Mr. Sterling; and a reporter who wishes to remain upon the Times, must be at a considerable distance from any third person, and look very carefully round all points of the compass, before he will venture even to mention his very name. It is death without benefit of clergy. Altogether, there is no newspaper establishment in the world which can bear the shadow of a comparison with this; and notwithstanding the armies of enemies raised up by the occasional indiscretions of Mr. Sterling, there cannot be a doubt that the Times* will very long continue to maintain a considerable share of power in the political world.

Next in antiquity, and till recently, in political consequence, comes the memorable *Morning Chronicle*. All remember this newspaper in the high and palmy days of the illustrious Mr. Perry. Upon the death of that gentleman, the Morning Chronicle was sold to Mr. Clements of the Strand, for the sum of £30,000, a price not certainly too large to a person of the capital and ability of mind to grapple with such a speculation. The new purchaser was, unfortunately, not possessed of either of these requisites to success in this very perilous attempt, and his paper maker very soon obtained an extensive mortgage upon the copy right of the paper. Thus crippled in his resources, the great expenditure required for foreign correspondence, and for first-rate talent in reporting from the Houses of Parliament, and the Police Offices, and the Courts of Law, was nowhere to be found. Then did the Chronicle fall fast into the rear. Not only was the foreign correspondence invariably copied from the Times and the Herald of the preceding day, but the expenses of the establishment were curtailed by the use of types of double the ordinary size, with straggling intervals called "windows," and other expedients for saving a few daily shillings of expense. Thus dwindled away the circulation of this once celebrated paper; and, latterly, its sale did not amount to more than about two thousand copies per day. Under these circumstances, Mr. Clements, in January last, disposed of his interest in the Morning Chronicle for the sum of £17,000, to Messrs. Grote the banker, Easthope the stock-jobber, and Joshua Parkes, the great Birmingham Whig. But even these gentlemen cannot be much flattered upon their present knowledge of the very difficult mysteries of the newspaper trade. The foreign correspondence is certainly improved, and, from the important points of Paris and Madrid, the Chronicle is amongst the earliest in the field; but still the windows remain open in the type, and there is not more than two-thirds of the quantity of matter which appears in the Times. But more injurious by far is the interpolation of the writing of some of the proprietors themselves in the columns of the Chronicle. This is a most fatal mistake. How many fortunes have been melted into thin air through this most expensive of all the follies of the vain! Though Mr. Parkes should write himself up into the Cabinet of the Whigs, yet not then will he find himself repaid for all the thousands he will squander on the way. Men follow not, in these days, the leaders whose battle is not for the liberties of mankind, but for the high places for themselves. The philosophic and invaluable Mr. Black should here be allowed, without let or molestation, to expound to the world his own

* The errors of the Times have, of late, got far beyond indiscretions.

most masterly views upon politics and life. He is the Socrates of the age, and ought not to be superseded by babblers. Upon public grounds we take the liberty of saying these things, because it is the absence of all power of competition which enables the giant of the Times to drive back, and to scorn and defy the advancing spirit of the age. There never was such an opportunity as the apostacy of the Times presents to the advance of the Chronicle.

The *Morning News* has been built upon the ruins of the *Guardian and Public Ledger*, which it is fast following to the tomb.

The *Morning Post* is well known upon the Conservative side. It was the property of the Messrs. Byrne, one of whom, dying of the cholera in the course of a few hours in the year 1832, occasioned the Post to be sold, for the sum of £24,000, to the tame elephant, and others of his party. The circulation is small, but, going much into the aristocratic circles, the advertisements are charged at a high price, and form a profitable return. Mr. Walton is the writer of the political articles, which are rabid, and therefore lose their effect.

Morning is now over, and we pass to the doings of the Evening.

Of the evening papers, the *Globe* has been the most conspicuous since the advent of the Whig administration. It is edited by Mr. Gorton, the compiler of a Biographical Dictionary, and other very fair works. This gentleman has, however, been a mere cipher for the last four years, the political articles having come regularly and daily from the offices of Lords Palmerston and Melbourne. It is called "Cupid's Album," because it is written by Lord Palmerston, and Lord Palmerston is called Cupid, because he kills ladies with his gold chain. Should the course of Cupid not again run smooth, the Globe will—but we will not prophesy its fate till we have further proved its new character.

The *Courier* is a joint-stock company, the shares twenty-four, and held by a diversity of persons. Political principle it has absolutely none, and of all the s———ts that ever walked the streets, this has probably been the worst. Amongst others who write editorial articles for its columns, is no less a personage than Louis Philippe, the King of the Barricades. Thus, if the reader will turn to the file of the Courier of the date of Thursday, March 29, 1833, he will there see, in the shape of an editorial article, the defence, by himself, of the King of the French—and certainly a very satisfactory defence—upon the charge of ingratitude towards his Minister Lafitte, in suffering his property to be sold. For the last twelve months the Courier has been under the editorship of Mr. James Stuart, a Scottish gentleman of talent, and the author of a popular work of travels in the United States of America. This gentleman was before the public some years since, in consequence of his duel with Sir Alexander Boswell. Why we mention the private affairs of Mr. Stuart, which is done with the greatest respect, is to undeceive the public as to the present standing, property, and influence of the new Courier; for it is given out, and, out of Scotland, very extensively believed, that Mr. Stuart has merely become editor of the Courier, for the purpose of mental occupation, and to drive away his cares consequent upon the affair alluded to above. So honorable, wealthy, and dignified a person, it is said, would never have accepted an appointment as the editor of a newspaper, without the most perfect liberty of action, upon principles of his own; and, therefore, the independence of the Courier is now undoubted and complete.—These assertions may be true, and the public may probably possess the guarantee for the independence of the Courier, but that is no reason why we do not inform our readers that Mr. Stuart no longer is possessed of any property whatever, his estates in Scotland, and everything possessed by him in the world, having been swept away by reason of indiscreet speculations at the period of the panic. The public has an undoubted right to be informed that the person who states "that Mr. O'Connell wheedles and cheats the peasantry of Ireland out of two-pences and pence," is quite as likely to be commanded by his employers to say those things, as any other person whose subsistence depends upon his pen. The Courier lately prostrated itself in the dirt at the feet of the Duke of Wellington. His Grace did not deign to pick it up. It is trying to recover from the false stumble—but the mud sticks.

The *Sun* is an evening paper of moderate notoriety. Mr. Murdo Young is the proprietor of this luminary. He also found favor with the Whigs, and he still fights well in their behalf.

The *Standard* is owned by Mr. Baldwin and edited by Mr. Gifford and the well known Maginn. This paper is another instance of the power of mere style; for it has fought its way to a large circulation under all the disadvantages of a losing cause.

Finally, we shall glance at that very important division of the metropolitan press, the Sunday newspapers.

First, then, is the colossus of weekly literature, the *Dispatch*. It is the property of Mr. Harmer of Hatton-garden, who has made many thousands of money by its success—previous to which he possessed not much. Its principal writer is a Mr. Williams, who produces the first or principal leading article, and the letter under the signiture of Publicola. This gentleman was formerly a Lieutenant in the Navy, in which capacity he acquired his view of the former tyrannical horrors of our vessels of war, the remembrance of which has given such a tremendous power to his pen. His father was an American loyalist, and related to General Hayne, the late very distinguished Governor of South Carolina. Mr. Williams has also been the editor of an edition of Thompson's Seasons, and of Milton's Paradise Lost, and the author of an original and powerful work, called "The Tales of Old Mr. Jefferson:" books which the public ought to buy, in honor of one of the noblest warriors that ever yet appeared in the cause of the liberties of man.

Superior in brilliancy of style, and little inferior to the Dispatch in fixedness of purpose, comes that bright gem of political literature, the *Spectator* newspaper. Great sums of money here have been lost, and certainly very honorably lost. Mr. Day, formerly the blacking-maker of Holborn, has had much connection with this paper, expending most liberally—because with little prospect of remuneration—a portion of his fortune in the support of this bright and liberal publication. The price of the Spectator is the only stumbling block to its triumphant success. We, therefore, suggest that, by a diminution of the size of the paper, and the partial discontinuance of its refined productions in literature, theatricals, and the fine arts, the Spectator might be conveniently sold at the ordinary price. With this change it would rise to a circulation of ten thousand in a single month. Its editor is a Scottish gentleman—Rintoul by name.

There is also the *Sunday Times*, a pleasant and inoffensive print. It goes chiefly into "families," and, therefore, pretends not to any particular political decision. This paper was founded by Mr. D. W. Harvey; whose energetic writings advanced it to the large circulation of ten thousand copies per week. That gentleman then sold it for the sum of £7000 in money, and an annuity of £400 per annum, which he enjoys at the present time. Its circulation is good, but has much gone down. Mr. Gaspy is the editor and partly the proprietor of the Sunday Times.

The *John Bull* is still edited by Mr. Theodore Hook. This paper was established by the Government—the expenses having been paid by the Treasury for the first six weeks. Owing to the assistance of Mr. Croker, and style of Mr. Hook, further assistance was not required—the paper having been brought to be a valuable property in that unexampled short period of time. Owing to the change in the health of Mr. Hook, the John Bull is now much less prosperous than in the early part of its career. This gentleman was seized with apoplexy at his house at Putney, and lay for a considerable time in a very debilitated state. Since that period, both in his political writings and in his literary productions, there has been a corresponding diminution in the vigor of his mind. Mr. Hook has recently sold one of his remaining quarter shares in the John Bull for the sum of £4000.

Into the lower region of the press—the stews wherein dwell the *Age*, and the other children of John Bull—at present at least we will not go to. The *True Sun*, the *Morning Advertiser*, and the *Examiner*—all honest men laboring in the good cause—we also reserve for the present.

RAILWAY IRON.

95 tons of 1	inch by	⅞ inch,		*Flat Bars* in lengths o
200 do.	1½ do.	⅞ do.		14 to 15 feet, counter sunk
40 do.	1½ do.	¾ do.		holes, ends cut at an angle
800 do.	2 do.	¾ do.		of 45 degrees, with s[illegible] li-
800 do.	2½ do.	¾ do.		cing plates and nails to
soon expected.				suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

Wrought Iron Rims of 30, 33, and 36 inches diameter for Wheels of Railway Cars, and of 60 inches diameter for Locomotive wheels

Axles of 2¼, 2⅜, 2½, 3, 3¼, 3½, and 3⅝ inches diameter for Railway Cars and Locomotives of patent iron.

The above will be sold free of duty, to State Governments and Incorporated Governments, and the Drawback taken in part payment. A. & G. RALSTON.

9 South Front street, Philadelphia.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use both in this country and Great Britain, will be exhibited to those disposed to examine them. d71meowr

PATENT RAILROAD, SHIP AND BOAT SPIKES.

☞ The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount and on short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

☞ All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent,

Troy, N. Y. July, 1931.

☞ Spikes are kept for sale, at factory prices, by I. & J. Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 222 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

1J2sam H. BURDEN.

MILL DAM FOUNDRY FOR SALE,

☞ The Proprietors of the Mill Dam Foundry offer, for sale or lease their well known establishment, situated one mile from Boston. The improvements consist of

No. 1. *Boiler House*, 50 feet by 30 feet, containing all the necessary machinery for making boilers for *Locomotive* and other steam Engines.

No. 2. *Blacksmith's Shop*, 50 feet by 20, fitted with cranes for heavy work.

No. 3. *Locomotive House*, 54 feet by 25, used for putting together Locomotive Engines. Several of the best Engines in use in the United States have been put in this establishment.

No. 4. A three story brick building, covered with slate, 120 feet by 46, containing two water-wheels, equal to 40 horse power; Machine Shop, filled with lathes, &c.; Pattern Shop; Rolling Mill and Furnaces, capable of rolling 4 tons of iron per diem, exclusive of other work; three Trip Hammers, one of which is very large; Engine for blowing Cupola Furnaces, moved by water-wheel; one very superior 12 horse Steam Engine, which could be dispensed with; and a variety of other machinery.

No. 5. An Iron Foundry, 80 feet by 45, with a superior air Furnace and two Cupolas, Core oven, Cranes, &c. fitted for the largest work. Attached to the Foundry is a large ware-house, containing Patterns for the Castings of Hydraulic Presses, Locomotive and other Steam Engines, Lead Mill Rolls, Geering, Shafts, Stoves, Grates, &c. &c. These were made of the most durable materials, under the direction of a very scientific and practical Engineer, and are supposed to be of great value.

No. 6. A building, 65 feet by 36, containing a large stack of chimneys, and furnaces, for making Cast Steel. This building is at present used as a boarding-house, and can accommodate a large number of men.

No. 7. A range of buildings, 200 feet long by 30, containing counting room, several store rooms, a Brass Foundry, room for cleaning castings, a large loft for storing patterns, stable for two horses, &c. &c.

The above establishment being on tide water, presents greater advantages for some kinds of business than any other in the United States. Coal and Iron can be carried from vessels in the harbors of Boston, to the wharf in front of the Factory, at 25 to 30 cents per ton. Some of the largest jobs of Iron work have been completed at this establishment; among others, the great chain and lift pumps for freeing the Dry Dock at the Navy Yard Charleston.

The situation for Railroad work is excellent, being in the angle formed by the crossing of the Providence and Worcester Railroads. The Locomotive "Yankee," now running on the latter road, and the "Jonathan," purchased by the State of Pennsylvania, were built at these works. With the Patterns and Machinery now in the premises, 12 Locomotives and as many tenders, besides a great quantity of cars and waggons, could be made per annum.

For terms, apply to

THOS. J. ECKLEY, Treas'. &c., Boston, or to

ROBERT RALSTON, Jr., Philadelphia.

Boston, Dec. 20, 1834.

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	Par.	*Ask.*	*Offer.*
Mohawk and Hudson.....	100	116	115
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Or a Map of the United States, 24 by 40 inches, on which is delineated all the Railroads and Canals in use, or in course of construction, and most of those in contemplation; together with a concise description of, or reference to, each, and containing over 70 pages of letter press. The map is on bank note paper, and put up in pocket form, with morocco cover, or in paper cover, and may be sent by mail to any part of the country. Price $2.

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by D.K. MINOR.

*** All letters must be postage paid. Eleven numbers sent to one address for $5, — and TWENTY-THREE for $10. D. K. M.

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These works may all, or either of them, be had of S. Blydenburgh, 96 North Pearl street, Albany; D. Hale, 124 Washington street, Boston; Fessenden, Philadelphia; or of the Proprietor and Publisher,

D. K. MINOR,
35 Wall street, New-York.

GOLD REGION OF THE UNITED STATES.

☞ Now in press and will be published in a few days the first of a series of numbers, giving a minute and particular description of the entire *Gold Region of the United States.*

Each number will be accompanied by a Map, on which will be laid down, and numbered, with owner's name, in the order of discovery, of every Gold Mine within the district of which the number treats, so that any person can ascertain the location, owner's name, and *condition*, as late as January 1, 1835, of every Gold Mine, or place where gold has been discovered in the United States.

The first number, which will be issued by the 20th of April, will give the Gold region of North Carolina: together with a very interesting Essay, upon the Gold region of the United States, from the transactions of the Geological Society of Pennsylvania, by JAMES DICKSON, Esq., F. G S. of London, C. M. G. S. of Pennsylvania, &c. &c.—With other interesting and important information in relation to the supply and consumption of Gold.

The information and maps are by a scientific gentleman, who has visited personally what he describes.

No. 2, including the States of Virginia and Maryland, will be published by the first, or during the month of June.

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The terms will be $1 per number, or $5 for the Series.—Subscriptions addressed to D. K. MINOR, or to the publishers, T. & C. WOOD.
No. 7 Wall street.

*** Gentlemen who may have particulars, or details, of present condition of mines in North Carolina, will oblige me by communicating the same, that the work may be as complete as possible. D. K. MINOR.

NOTICE.

☞ The Board of Directors of the NEW YORK AND ERIE RAILROAD COMPANY, believing that the interests of this City demand that the construction of their Railway should be immediately commenced, and having resolved, with undiminished confidence in the merits and early productiveness of the undertaking, to proceed in their operations without delay, hereby give *Notice*, that in order to provide means adequate to the completion of a single track of the Railway over an extended and most important portion of the route, subscriptions for *Two Millions* of the capital stock will be received at their Office, No. 29 Wall street, on the 15th day of April next, and the two succeeding days. Five Dollars on each share is required to be paid at the time of subscription.

It is to be understood that no further issue of Stock will be made within two years, and that it is the object of the Company, before the expiration of that period, with this and the former subscription, to put such portion of their Road in operation, as will, they confidently believe, yield a profitable return on the cost thereof.

New York, 30th March, 1835.

By order of the Board.

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JOHN G. COSTER,
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ELEAZAR LORD,
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Committee to receive Subscriptions.

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THE Eulogy by JOHN QUINCY ADAMS, on the Life and Services of this Benefactor of Mankind; on a beautiful paper and type; with a spirited *medalion pentographic likeness.* Is just published and for sale by
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Spikes made at the above Factory are recommended to the public as superior to any thing of the kind now in use Ship and Boat Spikes made full size under the head, so as not to admit water.

Orders may be addressed to Messrs. ERASTUS CORNING & CO., Albany, or to THOMAS TURNER, at the Factory, Troy, N. Y. sept.13 1y

STEPHENSON,

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☞ RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlæm Railroad now in operation. J25 tf

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS.

☞ Also, AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to.

Also, CAR SPRINGS.

Also, Flange Tires turned complete.

JS ROGERS, KETCHUM & GROSVENOR

NOTICE TO MANUFACTURERS.

☞ SIMON FAIRMAN, of the village of Lansingburgh, in the county of Rensselaer, and state of New-York, has invented and put in operation a Machine for making Wrought Nails with square points. This machine will make about sixty 6d nails, and about forty 10d nails in a minute, and in the same proportion larger sizes, even to spikes for ships. The nail is hammered and comes from the machine completely heated to redness, that its capacity for being clenched is good and sure One horse power is sufficient to drive one machine, and may easily be applied where such power for driving machinery is in operation. Said Fairman will make, vend and warrant machines as above, to any persons who may apply for them as soon as they may be made, and on the most reasonable terms. He also desires to sell one half of his patent right for the use of said machines throughout the United States. Any person desiring further information, or to purchase, will please to call at the machine shop of Mr. John Humphrey, in the village of Lansingburgh.

August 15, 1833. A29 tf RM&F

SURVEYORS' INSTRUMENTS.

☞ Compasses of various sizes and of superior quality warranted.

Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by

E. & G. W. BLUNT, 154 Water street,
J31 6t corner of Maiden lane.

SURVEYING AND ENGINEERING INSTRUMENTS.

☞ The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely *new*, among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also a Railroad Goniometer, with two Telescopes—and a Leveling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes

WM. J. YOUNG,
Mathematical Instrument Maker,
No. 9 Dock st, Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad, I cheerfully furnish thee the following information. The whole number of Levels now in possession of the department of construction of thy make is seven The whole number of the "Improved Compass" is eight These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES P. STABLER, Sup't of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for the purpose.

HENRY R. CAMPBELL, Eng. Philad.
m1 1y Germant. and Norrist. Railroad